

GOVERNMENT OF INDIA
ARCHAEOLOGICAL SURVEY OF INDIA

CENTRAL
ARCHAEOLOGICAL
LIBRARY

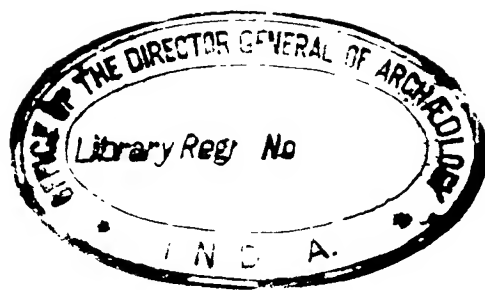
ACCESSION NO. 22431

CALL NO. 069.09(5451)/M.A.G.

D.G.A. 79

D.G.A. 79.

D480



1897-1898

1902-03

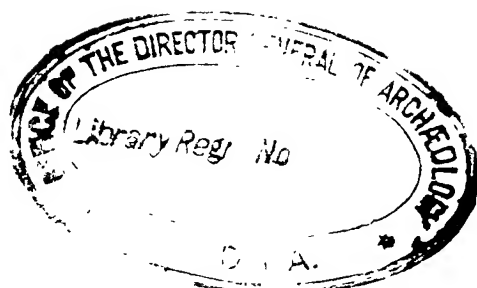
1903-04

1905-06

1906-07

1908-09 to 1912-13

MS
111157

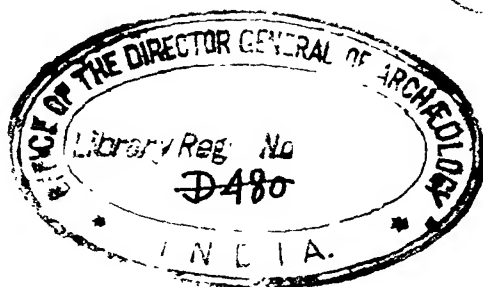


Received with Mr. Ravi Lall no 4097
2nd June 1900

~~D 480~~

20

(Administration Report of the Madras Government
Museum for the year 1897-98,) with the
Review thereon.



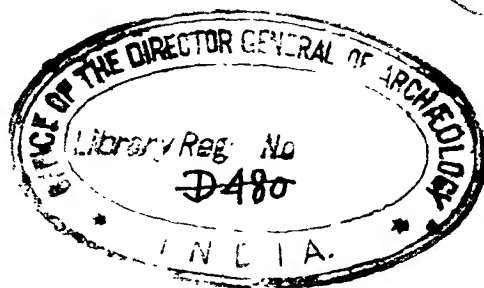
0.69.005451)
M. A. G.

Received from Mr. Ravi Lall on 4.9.97
2nd June 1900

~~D 480~~

20

(Administration Report of the Madras Government
Museum for the year 1897-98,) with the
Review thereon.



0.69.09(5451)
M. A. G.

~~Arch. 2011~~
GOVERNMENT OF MADRAS.

E D U C A T I O N A L D E P A R T M E N T.

READ—the following paper :—

From E. THURSTON, Esq., Superintendent, Government Museum, to the Secretary to Government, Educational Department, dated Madras, 11th July 1898, No. 465.

I have the honour to forward, for submission to His Excellency the Governor in Council, my report on the working of the Government Museum during 1897-98, and to request that I may be supplied with 160 copies for distribution to other museums, &c.

2. The report was due on the 10th instant, and the brief delay in its submission is due to difficulty in getting the proofs through the press.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT
MUSEUM FOR THE YEAR 1897-98.

I was absent on leave until 29th January, 1898, and am consequently only able to speak from personal experience of the working of the Museum during the last two months of the year. To Dr. A. G. Bourne, who officiated for me during my absence, my thanks are due for the loyal manner in which the work, more especially in the botanical and economic sections, was carried out on the lines arranged between us before my departure.

The Museum and Library, which were closed to the public on 7th March, 1897 on account of the dangerous condition of the tower and the necessity for its demolition, were re-opened on 15th May. A plan and estimate for constructing a carriage porch in place of the dismantled tower were approved.

2. VISITORS.—The total number of visitors to the Museum old building from 15th May, 1897 to 31st March, 1898 was 262,023, and to the new building 265,320.

The number of gosha women who visited the Museum on the days set apart for them (the first Saturday of each month from midday till 5 P.M.) was 2,109.

The greatest number of visitors on a single day was 47,260 to the old, and 46,795 to the new building, at the feast of Pongal (14th January).

The number of visitors on Sundays was 23,286 to the old, and 22,910 to the new building, giving averages of 506 and 498 per Sunday, respectively.

The proportion of those able to sign their names to that of those unable to do so was, as in the previous year, about 1:6 on week days and 1:3 on Sundays. This is satisfactory as showing that Sunday opening continues to appeal to the educated classes, who are prevented by business from visiting the Museum on week days.

3. LIGHTING OF BUILDINGS.—An estimate, amounting to Rs. 10,490, for providing an installation of gas for illuminating the lecture theatre and the Connemara public library was sanctioned for execution, when funds are available, in G.O., No. 240 W., dated 28th January, 1898.

4. LOCAL MUSEUMS.—In 1896 the Government of India referred the Proceedings of the Art Conference, Lahore, 1894, so far as they relate to the establishment of local museums and show-rooms, to the Government of Madras, which, in passing orders

on the subject, * expressed its opinion that the establishment of a number of local and provincial museums and show-rooms would entail on Government an expenditure, which, in the existing state of the finances, it is unable to perceive any prospect of meeting. Moreover, the difficulties in the

* G.O., No. 751, Educational, 17th December 1897.

way of the establishment and management of such museums are serious, and there are few, if any, places outside the Presidency town where they could be now organised so as to prove of real usefulness to any considerable section of the people. In the Presidency town, where workmen are in sufficient number and of sufficient intelligence to take advantage of such an institution, there is a local museum attached to the Madras Government Museum." Personally, I was very much opposed to the establishment of the proposed local museums and show-rooms, and my letter to Government, recording my views, is printed in Appendix F.

5. ARMS AND ARMOUR.—In the preface to his "Description of Indian and Oriental Armour" (edition 1896), Lord Egerton of Tatton, referring to the collections belonging to the India Museum and the Tower, says that "neither collection is rich in Southern Indian arms, and it is a matter of regret that the Government of India, while professing to watch over the preservation of archæological remains, has neglected to take advantage of the opportunity of acquiring old weapons from the armouries at Tanjore and Madras, and allowed them to be broken up and the contents sold as old metal." In defence of the Government I would draw attention to the small but quite excellent collection of arms from the Tanjore armoury, which has for many years been deposited in the Madras Museum, and is now, with the collection of arms and armour which has recently been received from the Arsenal, Fort St. George, one of the most conspicuous features of the Museum new building. The latter collection was transferred from the custody of the Military Department during the year under review, and arranged under the direction of Dr. Bourne in the corridor and western gallery on the ground floor of the new building. Included in the collection are a valuable and historically interesting series of arms captured by British troops in their wars against the Dutch, Burmese, Chinese, Tippoo Sultan, &c., of arms used by the British troops in the days of the East India Company, and the wooden cage in which Captain Anstruther was confined during the China War.

6. ANTHROPOLOGY.—The following apparatus was acquired by purchase for use in the Anthropological Laboratory from the Cambridge Scientific Instrument Company:—

Estimating divisions of a line.
Appreciation of colours.
Keeness of eyesight.
Appreciation of difference in musical pitch.
Hearing highest audible note.
Reaction time, hearing and sight.
Appreciation of weight.
Spirometer.
Hand dynamometer.

With this apparatus a series of records of Europeans was commenced, which will be useful for the purposes of comparison when I take in hand the systematic investigation of the educated Native community, which should prove of great interest.

Bulletin Vol. II, No. 1, dealing with the Badagas and Irulas of the Nilgiris, the Paniyans of Malabar, a Chinese-Tamil cross, &c., and giving a summary of the results of my work up to date, was issued during the year. In connection with the next Bulletin a large number of Eurasians were investigated by me; and, as a standard of physique for military purposes, physical records of a number of sepoys of the 28th Madras Infantry were obtained. These men entered heartily into the spirit of anthropometric research, which they termed Museum gymnastic sports. The investigation of the Sheik, Pathān, and Saiyad Muhammadans of the City of Madras was continued.

A large number of lantern-slides of types of Native tribes and classes, which will be valuable both for lecture purposes and for exhibition in compact form, were added to the photographic collection. Some of my negatives and half-tone cuts were sent on loan to England for illustration of a forthcoming work on Ethnology.

To the anthropomorphic series were added skulls and photographs of the Orang-utan; and the pelvis of an ape showing the bony ischial tuberosities flattened for the reception of the ischial callosities.

22431.
6. 2. 56.
069. 09(5451)/M.G.M. M.A.G.

7. **ARCHÆOLOGY.**—To Dr. E. Hultzsch, Government Epigraphist, the Museum was indebted for the receipt of four stone slabs, with rude sculptures and Tamil inscriptions, found at the village of Kîl-Muttugûr, in the Gudiyâtam taluk of the North Arcot district. "The most archaic of the three inscriptions records a gift of land during the reign of Narasimha-varman. Below it are figured, in bas-relief, an elephant and a goose. As the elephant appears at the top of three inscriptions of the Western Ganga dynasty, which have been published by Mr. Kittel (*Indian Ant.*, Vol. VI, p. 101), and as the goose is said to have been the device of the banner of the mythical Ganga king Konkani (*South Indian Inscript.*, Vol. II, p. 387, note 5), it may be assumed with some probability that Narasimha-varman belonged to the western Gangas. Of the remaining stones, two are dated in the time of the Chôla King Parântaka I, who ruled from about A.D. 900 to 940. The first of them refers to the death of a warrior, who was killed during a cattle-raid, which was undertaken by a western Ganga king. The second marks the spot at which a tiger had been killed by an inhabitant of Mukkuttûr, the modern Muttugûr. The fourth stone records the death of a warrior during a cattle-raid in the time of king Narasimha-varman."

A small collection of earthen pots, iron tools, and weapons was received from Mr. F. Fawcett, Superintendent of Police, Malabar, who writes concerning them: "The pots and iron tools and weapons were found at Kadakâmbalam, a "garden" about four miles from Calicut. There appears to have been a circle of stones about 27 feet in diameter, and in the centre of this circle was a stone cist, made of slabs, in which the pots, &c., were found. The cist was filled with earth, and the vessels, &c., were found near the bottom. Two pots were in the south-east corner. Besides those sent to the Museum, there were several other pots more or less broken. Indeed, the diggers, joking among themselves, said some one must have kept a toddy (liquor) shop there. The remark indicates a total absence of reverence for the relics of the dead. For receptacle for the remains of the dead the cist seemed to be. There were in the various vessels a number of small pieces of bones, some of which appeared to have been charred."

From Dr. E. Hultzsch were received a very interesting set of metal bells, some bearing Telugu inscriptions, which were discovered in a rock-hewn chamber at Bezvâda in the Kistna district, together with copper-plates of the eastern Chalukyan kings Vishnuvardhana III and Bhîma I. The following copper-grants were also deposited in the Museum:—

A set of five copper Dibbida plates of Arjuna, of the Matsya family, Saka Samvat 1191.

A set of three copper plates, with broken seals, called Tottaramudi plates of Kâtaya Vêma, Saka Samvat 1333 (published in *Epigraphia Indica*, Vol. IV, No. 46), from Masulipatam in the Kistna district.

A set of seven copper plates with seal, called Konkuduru plates of Allaya-Dodda, Saka Samvat 1352, from the Gôdâvari district.

8. **BOTANICAL AND ECONOMIC.**—The greater portion of Dr. Bourne's work at headquarters in these departments consisted in the direction of the re-arrangement of the economic collection in the old buildings, and in the examination of the herbarium, and incorporation therein of the collections received from Ootacamund towards the close of the last official year.

Writing to Government concerning the herbarium (*vide* G.O., Revenue, No. 990, 26th November, 1897), Dr. Bourne stated that "Mr. Lawson and Abboye Naidu (late herbarium keeper, Government Museum) having both died before I commenced the present investigation, without having placed on record any general notes with regard to the collections, I have had to depend on intrinsic evidence only for my information. I gather that at one time or another all the specimens passed through Mr. Lawson's hands, and that he only returned to Madras specimens of species of which he had ample material. I have now re-united the collections, and have thereby greatly strengthened the material in very many cases. I have, however, segregated, at any rate as a temporary measure, all specimens of species represented in Southern India from the other Indian and extra-Indian species. As this report has reference to the botanical survey of Southern India, I shall speak only of the South Indian species

The collection consists of specimens collected by Wight, W. Elliot, Drew, Cleghorn, Beddome, Bidie, and Lawson, and of specimens presented from the Herbaria of Kew, Calcutta, Poona, Peradeniya, C. B. Clarke, Gamble, Cameron, Bourdillon, and others. There are also a large number of specimens emanating from two or three sources, which I have up to now been unable to localise. The number of specimens added by Mr. Lawson, especially from the Nilgiris, is very great indeed. In addition to the sheets of dried plants, there is a collection of seeds and fruits formed by Mr. Lawson, which I have united with a similar collection made by Mr. Gamble, and transferred from the office of the Conservator of Forests, Central Circle, to the Museum. Mr. Lawson left a small collection of coloured drawings of plants, chiefly orchids and balsams, but no systematic collection of notes. There are, however, short but valuable notes in his hand-writing upon many of the sheets bearing the specimens themselves. His chief work is expressed in the arrangement of the Herbarium itself, the bringing together what he considered to be specimens of one and the same species, although described under various names. This determination of the synonymy is, of course, a very important factor of all Herbarium work; I only wish to point out that the position of a particular specimen in a particular cover may represent much labour.

"The List of the Plants of Southern India" which I have prepared, and which is, I fear, owing to my having had to expedite my report, not as free from errors as I could wish, shows —

(i) that a considerable number of species not hitherto recorded from Southern India, do occur;

(ii) that a very large number of species which have been recorded from Southern India, are not represented in the Herbarium.

Of the former group, only one or two appear to be new species and undescribed; of the latter, the great majority are gaps, several of which I have already filled as the result of my recent tours, while others will be easily filled by a good collector in the course of a series of tours in the Presidency.

The "List" referred to above, which has been printed and distributed, indicates the present state of our knowledge of the flora of Southern India, and will form a useful basis for further investigations in connection with the botanical survey.

Dr. Bourne made three tours during the year, viz., to the South Arcot district, the Palni, and the Shevaroy Hills. They were all undertaken with the view of filling gaps in the Herbarium, and continuing the botanical survey. On the Palni hills about 850 species, exclusive of *Cyperaceæ* and *Gramineæ*, were collected. The tour in the South Arcot district was undertaken in April, at the hottest and driest time of year, with the special object of examining the chief xerophilous plants (*i.e.*, plants which flourish when exposed to great heat and drought, and show a definite response in their structure to the conditions under which they live) in what promised to be a peculiarly suitable locality, and, owing to the prolonged drought, amidst unusually severe conditions. Tiruvanamalai and Chengam in the plains, and Melpet on the South Arcot hills, at an elevation of about 4,000 feet, were visited. A list of the plants collected is given in Appendix H.

The tour on the Shevaroy Hills extended only over eight days in October, and numerous specimens (*vide* Appendix G) were secured for the Herbarium, which previously contained very few specimens from these hills. Very little virgin forest remains, and one marked feature of the flora is the extent to which introduced plants are becoming naturalised all over the hills.

In 1896, at the request of Government, I was asked to institute an enquiry, in consultation with the Board of Revenue, as to the practicability of destroying prickly-pear (*Opuntia Dillenii*) by means of cochineal insects or other parasites. As an initial step, the Collectors of all districts in the Presidency had been asked to cause enquiry to be made as to whether any animal or vegetable parasite has been anywhere observed, or can be found, feeding upon prickly-pear in such a manner as to warrant a hope that it might be used as an agency for destroying the plants. Carrying the enquiry further, Dr. Bourne obtained from Ganjam a supply of the "wild" variety of cochineal insect (*Coccus cacti*, var. *Grana sylvestris*), with which a series of experiments were carried out. His report on the subject is reprinted in Appendix J.

In March, 1898, Dr. Bourne paid a visit to the Gódlávari deltas to investigate the cause of the sugar-cane disease prevalent there, and subsequently submitted a report thereon, which is reprinted in Appendix I.

Specimens of insects, which had made their appearance in the Gumsúr and Ichapúr taluks of the Ganjám district, were received from the Board of Revenue, and identified, at the Indian Museum, Calcutta, as *Hieroglyphus furcifer*, Sauss. Other insects, which had attacked the rice crop in the same district, were identified as *Hieroglyphus furcifer*, Sauss, and *Euprepocnemis bramina*, Sauss.

The President of the District Board, Tanjore, forwarded to the Museum specimens of a beetle (*Oryctes rhinoceros*), which was destroying the cocoanut trees on road-sides. The following remedy was recommended: "To catch, or kill the beetle with a small iron barbed spike put down the hole bored by it. The beetle may then be drawn out, or, still better, be left dead in the hole, as its corpse appears to deter other beetles from coming. As the beetles prefer a tree which has been already attacked, such trees should be examined daily. Any holes may be plugged with tufts of fibre dipped in weak carbolic acid. Trees destroyed beyond power of recovery should be cut down, and burnt. They should not be used for posts, etc., as the eggs and larvæ continue to develop, and one beetle may produce a thousand young. If the beetles are in large quantities, a fire may be burnt at night, as it attracts them, and they can be driven into it with branches."

Specimens of an insect destructive to the crop of *Cajanus indicus* at the Government Farm, Saidapet, were identified as a Cantharid beetle, probably *Mylabris pustulata*, Fabr. The District Forest Officer, Manantoddy, sent some larvæ, which were attacking the young teak trees. These were reared at the Museum, and identified as the common defoliator, *Alope ricini*, Fabr.

The Board of Revenue considering it desirable to maintain a permanent record of the movements of those fishes which go about in shoals, and are economically valuable, the Museum was consulted on the subject, and a list, giving the scientific, English, and Tamil names, with references to the illustrations in Day's "Fishes of India", of those fishes whose movements would be worth recording and observing, was prepared.

9. INDUSTRIAL MONOGRAPHS.—The monograph on the "Cotton Fabric Industry of Madras," referred to in the last report, was issued, and reproduced, with the original illustrations and coloured reproductions of the samples of imported piece-goods submitted with the monograph, in the Journal of Indian Art, July and October, 1897. In accordance with the wish of Government the preparation of a companion monograph on the woollen industry was taken in hand.

10. MINERAL GALLERY.—A sample of blue clay from the Wajra Karúr diamond mines was exhibited in a bracket case.

To Mr. J. H. B. Brougham the Museum was indebted for a small collection of minerals from the Nellore mica mines. The Collector of the Kistna district forwarded for examination an earthy substance, found in the Palnád taluk at Kopanúr and Ratsamapallipád, which seemed likely to serve as a distemper, and imparts an excellent red colour to bricks. It was identified as yellow ochre, which is of very common occurrence in all the lateritic tracts of Southern India.

11. MOLLUSCA.—A right handed chank (*Turbinella rapa*) shell, i.e., a shell with its spiral opening to the right, was acquired in the Madras bazaar for the small sum of Rs. 150. A shell of this nature, found off the coast of Ceylon at Jaffna in 1867, was sold for Rs. 700. Such a chank is said to have been sometimes priced at a lakh of rupees (Rs. 1,00,000); and, writing in 1813, Milburn says (Oriental Commerce) that a chank opening to the right hand is highly valued, and always sells for its weight in gold. Further, Baldæus, writing towards the close of the seventeenth century, narrates the legend that Garroude (Garuda) flew in all haste to Brahma, and brought to Krishna the chianko or kink-horn twisted to the right.

Specimens were presented by Mr. W. M. Daly of a fresh-water mollusc found by him in the Budra river, Mysore, and described by Mr. Edgar A. Smith as a new species under the name of *Mulleria Dalyi*.

12. MAMMAL AND BIRD GALLERY.—The skeleton of the large tusker elephant was set up afresh. A series of sections of molar teeth of the elephant, demonstrating their structure, was purchased in Ceylon, and exhibited. Skeletons of the fore and hind feet of an elephant which died at the People's Park were prepared in such a manner as to show the position of the bones during life. A number of photographs and reproductions of photographs of South Indian mammals were framed and exhibited. The head of a black leopard or panther (*Felis pardus*) was stuffed. The skull of a Gaur (*Bos gaurus*), the "Bison" of Indian sportsmen, was mounted on a shield.

From the People's Park an albino Peacock was received. A live specimen of the large spotted eagle (*Aquila maculata*) was obtained in the City of Madras in July. A pair of red crested Pochards (*Branta rufina*) were obtained in the Madras market in February.

13. FISHES.—The following fishes, acquired in the Madras fish-market, were stuffed during the year:—

Carcharias acutus.	Scorpæna armata.
Anguilla bengalensis.	Pterois miles.
Muraenesox talabon.	Teuthis oramin.
Elops saurus.	Acanthurus gahm.
Serranus lanceolatus.	Caranx sansun.
„ boenack.	„ affinis.
„ sonnerati.	„ melampygus.
„ sp.	Trachynotus baillonii.
Lutjanus lineolatus.	„ ovatus.
„ rivulatus.	Platax teira.
„ sp.	Stromateus niger.
Pristipoma furcatum.	Cybius kuhlii.
Diagramma pictum.	„ commersonii.
Heniochus macrolepidotus.	Elacate nigra.
Holacanthus annularis.	Echeneis naucrates.
Scatophagus argus.	Pseudoscærus rivulatus.
Upeneus indicus.	Ostracion turritus.
Lethrinus karua.	„ cornutus.
Chryscephrys sarba.	

A skeleton of *Rhinoptera javanica* was prepared.

14. LIVE ANIMALS.—The collection of live animals, exhibited in the front hall of the old building, continued to attract great attention, and was expanded. At the close of the year it consisted of the following:—

Birds.

- Aquila maculata—large spotted eagle.
- Gallus sonneratii—grey jungle fowl.
- Galloperdix spadiceus—red spur-fowl.
- Ortygornis ponticæriana—grey partridge.
- Crocopus chlorigaster—southern green pigeon.
- Domesticated pigeons, illustrating variation under domestication.
- Turtur humilis—red turtle-dove.
- „ risoria—common ring-dove.
- Pterocles fasciatus—painted sand-grouse.
- Munia malacca—black-headed munia.
- Uroloncha malabarica—white-throated munia.
- „ punctulata—spotted munia.
- Sporæginthus amandava—Indian red munia.

Mammals.

Loris gracilis—slender loris.
Paradoxurus niger—Indian palm civet.
Gerbillus indicus—Indian antelope rat.

An attempt to keep alive in captivity the large brown flying squirrel (*Pteromys oral*) failed.

Fishes.

Barbus, sp.
Etroplus maculatus.
Rasbora daniconius.

Reptiles.

Chamæleon calcaratus.
Python molurus.
Gongylophis conicus—sand snake.
Eryx johnii—sand snake.
Zamenis mucosus—rat snake.
Dendrophis pictus—tree snake.
Tropidonotus stolatus.
 „ *piscator*—fresh-water snake.
Helicops schistosus—fresh-water snake.
Vipera russellii—Russell's viper or daboia.
Dryophis myeterizans.
Echis carinata.

A complete slough of the skin of the Russell's viper, and framed specimens of the skin of this snake and the Python, illustrating their characters, were exhibited.

The following note relates to the dietary and skin-moulting of the snakes, which were confined in the climate to which they were naturally adapted :—

Python molurus ate 37 rats, 3 quails, and 21 squirrels. Shed its skin on April 6th, August 12th, November 21st and February 6th.

Gongylophis conicus ate 51 mice and 1 rat. Shed its skin on June 13th, September 23rd and December 24th.

Eryx johnii ate 4 squirrels, 28 rats, and 4 mice. Shed its skin on August 2nd, November 10th and March 17th.

Zamenis mucosus ate 103 green frogs. Shed its skin in every month except October and December.

Dendrophis pictus ate 104 green frogs. Shed its skin on May 13th, June 16th, July 21st, October 17th, December 26th, and March 22nd.

Tropidonotus stolatus ate 91 green frogs. Shed its skin on March 17th, September 17th, December 26th, and March 20th.

Dryophis myeterizans.—Two specimens died during the year. They were fed on mice and frogs.

Vipera russellii ate 35 rats and 14 squirrels. Shed its skin on October 17th and January 18th.

Tropidonotus piscator shed its skin on May 17th, June 11th, January 20th, and February 24th. Ate an abundance of green frogs.

Helicops schistosus shed its skin on June 10th, July 19th, August 2nd, August 21st, October 7th, and November 22nd. Ate an abundance of green frogs.

15. CONNEMARA PUBLIC LIBRARY.—The library was open to the public during $10\frac{1}{2}$ months. The number of books, etc., given out was 11,356 against 7,663 in 1896-97. The following is a comparative statement of applicants for books, and of the volumes given out for reference, during the last two years :—

Names of months.	1896-97.		1897-98.	
	Number of applicants for books.	Number of volumes given out.	Number of applicants for books.	Number of volumes given out.
April	No account kept.		Closed.	
May	358	451	302*	471
June	459	565	436	648
July	473	570	566	787
August	771	823	588	915
September	641	746	609	1,090
October	612	741	523	1,025
November	474	585	499	869
December	857	1,021	866	1,409
January	862	1,026	1,056	1,476
February	706	901	838	1,241
March	199†	234	998	1,425
Total ..	6,412	7,663	7,281	11,356

* The library was open 6 days only.

† The library was open 15 days only.

From this statement it will be seen that there was, in 1897-98, an increase of 13·5 per cent. in the number of applicants for books, and of 48·2 per cent. in the number of volumes given out for reference.

In the annual report for 1896-97 reference to the printing of the subject-index catalogues was inadvertently omitted. Those issued up to the present time comprise the following:—

1. Anatomy ; biology ; natural history (animal) ; zoology.
2. Anthropology ; folklore.
3. Archæology ; architecture.
4. Arts and industries.
5. Botany ; arboriculture ; horticulture.
6. Dictionaries ; encyclopædias ; lexicons ; gazetteers ; guide-books ; manuals.
7. Economic products and economic entomology.
8. Education ; ethics ; logic ; metaphysics ; philosophy ; political economy.
9. Forestry and timbers.
10. Geography ; physical geography ; physiography.
11. Geology and Palæontology.
12. History ; calendars of State papers ; Master of the Rolls publications.
13. Mineralogy ; metallurgy ; petrology.
14. Natural philosophy (general) ; astronomy ; dynamics ; electricity and magnetism ; heat and thermo-dynamics ; light ; mathematics ; meteorology ; sound.
15. Numismatics ; medals ; heraldry.
16. Philology and epigraphy.
17. Physiology.
18. Sport and games.
19. Travels and foreign countries ; voyages.

The library folio copies of the catalogues (according to authors' names and subjects) were, after my return to duty, brought up to date, and so maintained.

The total number of standard works added to the library was 217, of which 178 were acquired by purchase and 39 presented (see Appendix D).

In Appendix C is given a statement showing the numbers of visitors in each month during each hour of the working day, from which it will be seen that the most popular hours for readers are in the afternoon hour from 2—5 P.M.

16. VALUABLE STOCK.—The requisite inventory of valuable stock was maintained, and duly checked. The collections were all in good order at the end of the year.

APPENDIX A.

Museum Old Buildings.

VISITORS from 15th May 1897 to 31st March 1898 on week days.

1897-98.				Signatures made in								
				English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April .. .. .	..	..	..	..	..	..	..	..	..	..	..	..
May	208	423	155	1,450	20	..	17	33	..	..	14	2
June	304	563	193	2,429	21	..	16	34	2	4	17	..
July	516	696	292	2,658	8	..	25	19	..	3	18	12
August	1,656	460	232	1,512	9	..	30	27	3	1	19	11
September	2,018	642	256	1,445	3	..	14	44	..	..	31	6
October	1,555	622	223	1,730	9	..	21	21	..	..	34	6
November	1,789	666	211	1,580	31	..	20	31	..	..	27	2
December	3,187	770	281	2,150	40	16	63	76	..	..	64	8
January	2,996	998	376	3,894	18	6	21	33	..	..	23	1
February	1,799	491	572	1,519	7	..	27	20	..	..	23	53
March	1,514	580	183	1,444	8	..	20	34	..	..	28	5
Total ..	17,342	6,911	2,977	21,811	174	22	274	372	5	8	298	106

1897-98.				Total number of signatures	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
							Males.	Females.	
14	15	16	17	18	19				
April .. .. .	..	..	..	..	..	..	..	..	..
May	2,322	6,272	8,594	5,350	3,244	8,594			
June	3,586	12,951	16,537	3,838	6,699	16,537			
July	4,047	13,306	17,353	10,125	7,228	17,353			
August	3,960	8,340	12,300	7,949	4,351	12,300			
September	4,459	6,904	11,363	7,423	3,940	11,363			
October	4,221	12,170	16,391	10,370	6,021	16,391			
November	4,357	10,945	15,302	9,490	5,812	15,302			
December	6,655	14,058	20,713	13,605	7,108	20,713			
January	8,366	82,973	91,339	41,364	49,975	91,339			
February	4,511	9,815	14,326	9,396	4,930	14,326			
March	3,816	10,703	14,519	8,837	5,682	14,519			
Total ..	50,300	188,437	238,737	133,747	104,990	238,737			

Museum New Buildings.

VISITORS from 15th May 1897 to 31st March 1898 on week days.

1897-98.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April .. .. .	..	..	..	..	..	..	..	..	..	..	..	..
May	49	563	185	909	39	..	19	51	2	..	37	..
June	115	1,033	234	1,526	48	4	12	57	13	7	37	7
July	140	1,060	365	1,834	80	13	34	103	16	14	109	14
August	1,172	530	181	1,331	9	2	21	12	4	7	21	3
September	1,459	566	184	1,736	..	..	6	8	..	..	10	..
October	1,342	511	189	1,913	7	1	7	15	..	..	7	2
November	1,474	725	161	1,844	8	1	28	11	..	..	7	1
December	2,865	742	161	1,896	3	..	39	30	..	1	36	2
January	3,375	1,424	242	2,296	4	..	6	50	..	..	33	..
February	1,786	530	370	1,565	6	..	53	45	..	..	36	..
March	1,595	546	156	1,267	4	..	33	42	..	..	13	3
Total ..	15,372	8,230	2,428	18,117	208	21	258	424	35	29	346	32

1897-98.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April .. .. .	..	..	..	..	..	..
May	1,854	8,358	10,212	5,874	4,338	10,212
June	3,093	14,807	17,900	10,377	7,523	17,900
July	3,782	12,833	16,615	9,892	6,723	16,615
August	3,293	9,326	12,619	7,450	5,169	12,619
September	3,969	7,431	11,400	7,050	4,350	11,400
October	3,994	12,454	16,448	9,199	7,249	16,448
November	4,260	11,002	15,262	8,994	6,268	15,262
December	5,775	14,928	20,703	12,226	8,477	20,703
January	7,430	85,398	92,828	37,764	55,064	92,828
February	4,391	10,186	14,577	9,173	5,404	14,577
March	3,659	10,187	13,846	8,374	5,472	13,846
Total ..	45,500	196,910	242,410	126,373	116,037	242,410

Museum Old Buildings.

VISITORS from 15th May 1897 to 31st March 1898 on Sundays.

1897-98.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April .. .. .	..	..	..	..	..	..	..	..	..	..	..	..
May	16	38	30	224	..	..	1	2	..	..	3	..
June	30	80	14	355	..	..	2	5	..	..	..	..
July	41	62	31	550	..	..	2	..	..	..	7	..
August	338	48	43	214	2	..	2	7	..	..	2	..
September	355	61	27	242	..	..	..	4	..	..	5	..
October	447	93	40	326	2	..	..	..	..	..	3	..
November	338	117	43	234	..	..	4	16	..	..	4	..
December	430	134	129	279	4	..	3	6	..	..	8	..
January	658	178	106	435	6	5	3	3	..	..	11	5
February	474	116	71	343	2	2	..	11	..	..	6	1
March	429	111	45	250	..	..	2	8	..	..	8	..
Total ..	3,556	1,038	579	3,452	16	7	19	62	..	..	57	6

1897-98.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April .. .. .	..	..	..	..	..	..
May	314	606	920	590	330	920
June	486	1,355	1,841	1,147	694	1,841
July	693	1,168	1,861	1,251	610	1,861
August	656	780	1,436	1,049	387	1,436
September	694	762	1,456	1,066	390	1,456
October	911	1,682	2,593	1,780	813	2,593
November	756	1,478	2,234	1,658	576	2,234
December	993	1,546	2,539	1,833	706	2,539
January	1,410	2,554	3,964	2,780	1,184	3,964
February	1,026	1,459	2,485	1,906	579	2,485
March	853	1,104	1,957	1,464	493	1,957
Total ..	8,792	14,494	23,286	16,524	6,762	23,286

Museum New Buildings.

VISITORS from 15th May 1897 to 31st March 1898 on Sundays.

1897-98.	Signatures made in											
	English.	Telugu.	Hindustani.	Tamil.	Mahratta.	Nagari.	Guzerati.	Canarese.	Chinese.	Sinhalese.	Malayalam.	Bengali.
1	2	3	4	5	6	7	8	9	10	11	12	13
April .. .. .	..	..	..	..	..	..	..	..	..	..	..	..
May	3	89	26	102	2	..	1	9	..	..	8	..
June	3	160	18	229	8	..	..	4	5	..	3	..
July	35	150	70	298	12	1	1	9	..	..	18	..
August	221	96	51	181	..	..	1	..	..	..	..	..
September	275	77	15	232	..	..	..	..	..	..	4	..
October	394	95	23	360	4	..	..	1	..	..	..	..
November	302	98	21	371	2	4	..	..	..	..	4	1
December	451	135	37	311	..	2	9	11	..	..	10	..
January	680	161	44	353	2	..	..	8	..	..	6	3
February	464	151	44	306	1	..	4	17	..	..	8	..
March	441	97	22	272	..	..	..	4	..	..	1	..
Total ..	3,269	1,309	371	3,015	31	7	16	63	5	..	62	4

1897-98.	Total number of signatures.	Unable to sign.	Total number of visitors.	Number of		Total number of visitors.
				Males.	Females.	
	14	15	16	17	18	19
April .. .. .	..	..	..	..	..	..
May	240	740	980	605	375	980
June	430	1,090	1,520	960	560	1,520
July	594	1,761	2,355	1,444	911	2,355
August	550	754	1,304	928	376	1,304
September	603	809	1,412	979	433	1,412
October	877	1,651	2,528	1,794	734	2,528
November	803	1,434	2,237	1,671	566	2,237
December	966	1,605	2,571	1,823	748	2,571
January	1,257	2,388	3,645	2,445	1,200	3,645
February	995	1,456	2,451	1,836	615	2,451
March	837	1,070	1,907	1,397	510	1,907
Total ..	8,162	14,758	22,910	15,882	7,028	22,910

APPENDIX B.

DONATIONS, 1897-98.

Asiatic Society of Bengal—

Silver coins of the Bāhmani dynasty of the Deccan found in the Angul district.

Firūz Shāh.

Ahmad Shāh II.

Gold coins of Kalinga year 31.

Barlow, Mr. G.—

White-eyed buzzard-eagle (*Butastur teesa*).Crimson-breasted barbet (*Xantholæma hoemacephala*).Bay-backed shrike (*Lanius vittatus*).

Baynes, Mr. A.R.—

Grey jungle-fowls (*Gallus sonneratii*).

- Board of Revenue—
Nigella sativa, seed.
- Brougham, Mr. J. H.—
 Biotite (black mica).
- Burma, Revenue Secretary—
 Symbolical coins found in the Shwebo district, Burma.
- Burnett, Mrs.—
 Larva of silk moth.
- Cameron, Mr. J.—
 Section of stem of *Agave*.
- Cochrane, Mrs.—
 Butterflies.
- Daly, Mr. W. M.—
Cœcilian (*Ichthyophis glutinosus*).
 Russell's viper (*Vipera Russellii*).
 Earthsnake (*Silybura* sp.).
 Mollusc (*Mulleria* Dalyi, Smith).
- Dhanakoti Mudaliar, A., Rai Rahadur.—
 Eggs of cobra.
- Dorabjee Merwanjee Daboo, Mr.—
 Head of gaur (*Bos gaurus*).
 Head of spotted deer (*Cervus axis*).
- Dorsey, Captain—
 Head of gharial and young gharial (*Gavialis gangeticus*).
- Falconer, Mr. P.—
 Tasar Silk Moth (*Antheraea mylitta*).
- Fawcett, Mr. F.—
 Pottery, axes, &c., from Malabar.
- Griffin, Mr. A. C.—
 Stick insect.
 Beetle (*Lucanus*, sp.).
- Hultzsch, Dr. E.—
 Three Tottaramudi plates of Kátaya Véma; Sákā samvat 1333.
 Seven Konkuduru plates of Allaya-Dodda; Sákā samvat 1352.
 Five Dibbida plates of Arjuna of the Matsya family; Sákā samvat 1191.
 Antiquities from the inner cell of a rock-hewn chamber discovered in a Public Works
 Department quarry at Bezwáda; consisting of—
 (a) Inscriptions on five copper-plates of the eastern Chalukyan King Vishnuvardhana
 III.
 (b) Inscriptions on five copper-plates of the eastern Chalukyan King Bhíma I.
 (c) Two square seats (one broken).
 (d) Five large metal bells, two of which bear Telugu inscriptions.
 (e) Several pieces of small bells.
- Jeswent Row, Mr. T. K.—
 Bottle with writing inside.
- MacGregor & Co., Messrs., Rangoon.—
 Series of photographs of elephants in the timber yard of Messrs. MacGregor & Co.
- Mahony, Mr. J.—
 White-browed bulbul (*Pycnonotus luteolus*).
 Indian oriole (*Oriolus Kundoo*).
- McNair, Mr. J. W. A.—
 Jelly-fish.
 Fish (*Arius*, sp.).
- Municipal Commission, Madras—
- | | | |
|------------|----------------|----------------|
| Magpie. | Crocodile. | White Peacock. |
| Cassowary. | Black Panther. | Drill. |
| Leopard. | Tapir. | Kangaroo. |
| Elephant. | Orang-utan. | Sambar. |
- Museum, Trivandram, Director—
 Collection of butterflies from Travancore.
- Natall, Mr. T.—
 Jungle crow (*Corvus macrorhynchus*) with pseudo-albinism.

Nilgiri district, Collector—

Mimic bow and arrows used by the Todas at their ceremonies.

North Arcot district, Sub-Collector—

Sculptured and inscribed slabs of stone from Kil Muttugur near Virinchipuram.

Rajah M. Dinakar, Ramnad—

Fish (*Stegostoma tigrinum*).

Krait (*Bungarus ceruleus*).

Rajaratna Mudaliar, Mr. T. R.—

Embryo tortoises.

Royal Asiatic Society (Bombay Branch)—

Gadhia coins of mixed metal, copper and silver, found at Kaira, Guzerat.

Royal Botanical Gardens, Calcutta, Superintendent—

Herbarium specimens.

Sinclair, Miss—

Malabar spiny mouse (*Platacanthomys lasiurus*) skins.

South Canara district, Collector—

Hanging lamp of bell-metal.

Small copper stand for an idol.

Street, Commander H. A.—

Leaf insect.

Subramaniam, Mr. P.—

Human skeleton.

Tate, Mr. A. C.—

Eggs of jungle night-jar (*Caprimulgus indicus*).

Tinnevely district, Collector—

Copper idol (*Angali Eswari*).

APPENDIX C.

STATEMENT showing the total number of visitors in every month during each hour of the day during the year 1897-98.

—	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	Total.
April .. .. .	..	..	..	..	..	..	..	..	..	..	..	..
May	53	49	58	40	29	39	29	36	59	57	39	488
June	63	92	69	78	75	68	51	91	102	79	39	807
July	52	83	81	98	126	69	76	124	115	105	18	947
August	48	80	76	75	81	78	82	121	123	116	30	910
September	56	67	77	85	105	72	84	82	129	93	27	877
October	59	60	75	71	80	63	88	81	90	93	17	777
November	51	53	47	95	93	69	83	85	96	93	18	788
December	63	131	98	125	112	140	156	184	220	179	35	1,443
January	75	120	131	158	146	147	189	224	197	203	25	1,615
February	57	106	115	126	123	122	110	121	163	163	21	1,227
March	82	112	125	133	124	135	100	168	176	174	48	1,377
Total	659	953	954	1,084	1,094	1,002	1,048	1,317	1,470	1,360	317	11,256

APPENDIX D.

LIST OF BOOKS ADDED TO THE LIBRARY.

Donations.

Alstine, Mrs. R. K. Van.—Charlotte Corday, 1890, 8vo.

Armstrong, R. A.—God and the Soul: an Essay towards Fundamental Religion, 1896, 8vo.

Bingham, C. T.—Hymenoptera, Vol. I. Wasps and Bees, *Illustr.* [*Fauna of British India*] 1897, 8vo.

Crooke, W.—Tribes and Castes of the North-Western Provinces and Oudh. *Illustr.*, 4 vols., 1896, 8vo.

Curwen, J. S.—Music at the Queen's Accession. Lecture, 1897, 8vo.

Dircks, H.—Perpetuum mobile: or Search for self-motive Power in the 17th, 18th, and 19th centuries. *Illustr.*, 1861, 8vo., and second Series, 1870, 8vo.

Dubois, Abbé J. A.—Description of the Character, Manners, and Customs of the People of India, and of their Institutions, Religious and Civil. Edited by H. K. Beauchamp, 2 vols., 1897, 8vo.

- Geddes, T. E.—La Resurreccion de Jesu-Christo, Nostro Señor, 1896, 8vo.
 Grünwedel, A.—Buddhistische Kunst. *Illustr.*, 1893, 8vo.
 Do. Aus den Verhandlungen der Berliner Anthropologischen Gesellschaft.
 Do. Drei Leptseha Texte mit Auszügen aus dem Padma-Than-zig und Glossar.
 Do. Ein Kapitel des Ta-she-sung, 1896.
 Do. Notizen aus den Reisen des Hrolf Vaughan Stevens in Malaka, &c.
 Hampson, G. F.—Moths [*Fauna of British India*]. *Illustr.*, Vol. IV, 1896, 8vo.
 Hooker, J. D.—Flora of British India, Parts 23–24.
 Hultzsch, E.—Miscellaneous South Indian Coins. Reprint, 1896.
 Kielhorn, F.—Chikkulla Plates of Vikramendravarman II. Reprint.
 Do. Ganjam Plates of Prithivivaramdeva. Reprint.
 Do. Nandamapundi Grant of Rajaraja, dated in his 32nd year [A.D. 1053] Reprint.
 King, L. W.—History and Coinage of Barakzai Dynasty of Afghanistan. *Illustr.*, Reprint, 1895, 8vo.
 ——— and W. Vost, —Some Novelties in Moghal coins. *Illustr.*, Reprint, 1896, 8vo.
 Krishnama Chariar, V.—A glorious Reign of Sixty Years, 1897, 4to.
 Lilljeborg, W.—Zoologiska Studier, 1896, 4to.
 Mayo, J. H.—Medals and Decorations of the British Army and Navy. *Illustr.*, 2 vol., 1897, 8vo.
 Moore, F.—Lepidoptera Indica, Parts 27, 28 and 30, 4to.
 Muir, Sir W.—James Thomason, Lieutenant-Governor of North Western Provinces, 1843—1853, 1897, 8vo.
 Oppert, G.—Reise nach Kulu im Himālaya. *Illustr.* 4to.
 Poole, S. L.—Catalogue of the Arabic Coins in the Khedivial Library at Cairo, 1897, 8vo.
 Ram Brahma Sanyal.—Hand-book of Management of Animals in Captivity in Lower Provinces of Bengal, 1892, 8vo.
 Sanderson, F. W.—Electricity and Magnetism for Beginners. *Illustr.*, 1897, 8vo.
 Shrinivásachāryah, G. C. V.—Harischandra: the Martyr to Truth, 1897, 8vo.
 Simms, J.—Physiognomy illustrated; or Nature's Revelations of Character. *Illustr.*, 1891, 8vo.
 Smith, C. C., and S. Bryant.—Euclid's Elements of Geometry, Books I and II, 1897, 8vo.
 Stabler, E.—Narrative of the Invention of Reaping Machines. Reprint, 1897, 8vo.
 Taylor, S.—System of Sight Singing from the Established Musical Notation, based on the Principle of Tonic Relation, 1890, 8vo.
 Todhunter, I.—Algebra for Beginners, edited by S. L. Loney, 1897, 8vo.
 Voelcker, J. A.—Report on the Improvement of Indian Agriculture, 2nd Ed., 1897, 8vo.
 Walker, C. C.—John Heminge and Henry Condell, Friends and Fellow Actors of Shakespeare, and what the World owes them, 1896, 4to.

Purchases.

- Abbott, B. V.—Dictionary of Terms and Phrases used in American or English Jurisprudence 2 vols., 1879, 8vo.
 Airy, G. B.—Undulating Theory of Optics, 1866, 8vo.
 Amos, S.—History and Principle of the Civil Law of Rome, 1883, 8vo.
 Do. Systematic View of the Science of Jurisprudence, 1872, 8vo.
 Asylum Press Almanac, 1898.
 Bacon, F. Viscount St. Alban's—Moral and Historical Works, with Notes and Dissertation by J. Devy [*Bohn's Standard Library*], 1894, 8vo.
 Do. Physical and Metaphysical Works, edited by J. Devy [*Bohn's Philosophical Library*], 1894, 8vo.
 Baierlein, E. R.—Land of the Tamulians, and its Missions. Translation, 1875, 8vo.
 Bain, A.—Study of Character, including an Estimate of Phrenology, 1861, 8vo.
 Ball, Sir R. S.—Star-Land. *Illustr.*, 1895, 8vo.
 Do. Story of the Heavens. *Illustr.*, 1890, 8vo.
 Banks, Sir J.—Journal during Captain Cook's first Voyage in H. M. S. Endeavour, 1768—71, edited by Sir J. Hooker. *Illustr.*, 1896, 8vo.
 Barnes, C. L.—Practical Acoustics. *Illustr.*, 1897, 8vo.
 Barrows, J. H.—World's Parliament of Religions, 2 vols., 1893, 8vo.
 Barry, E. M.—Lectures on Architecture. *Illustr.*, 1881, 8vo.
 Baynes, R.—Lessons on Thermodynamics. [*Clarendon Press Series*], 1878, 8vo.
 Beal, S.—Catena of Buddhist Scriptures from the Chinese, 1871, 8vo.
 Bell, Sir C.—Anatomy and Physiology of Expression as connected with the Fine Arts. *Illustr.*, [*Bohn's Artist's Library*] 1893, 8vo.
 Blakely, E. T.—Popular Technical Dictionary of Commercial and General Information, 8vo.
 Bonney, T. G.—Story of our Planet. *Illustr.*, 1897, 8vo.
 Bosworth, J.—Dictionary of the Anglo-Saxon Language, 1838, 8vo.
 Boutell, C.—Arms and Armour in Antiquity and the Middle Ages. *Illustr.*, 1893, 8vo.
 Buckland, F.—Curiosities of Natural History, 4 vols., 1891—93, 8vo.
 Chevreul, M. E.—Laws of Contrast of Colour; and their Application to Arts. *Illustr.*, Translation, 1859, 8vo.

- Chorley, H. F.—National Music of the World. Edited by H. G. Hewlett, 1882, 8vo.
- Church, A. H.—Precious Stones considered in their scientific and artistic relations, with Catalogue of the Townshend Collection of Gems in the South Kensington Museum. *Illustr.*, 1882, 8vo.
- Clark, H.—Introduction to Heraldry. *Illustr.*, 1892, 8vo.
- Clifford, W. K.—Mathematical Papers. Edited by R. Tucker, 1882, 8vo.
- Collingwood, W. G.—Limestone Alps of Savoy: a study in Physical Geology with Introduction by J. Ruskin. *Illustr.*, 1884, 8vo.
- Cooke, M. C.—Rust, Smut, Mildew, and Mould: Introduction to the study of Microscopic Fungi. *Illustr.*, 1865, 8vo.
- Creasy, Sir E.—Imperial and Colonial Constitutions of the Britannic Empire, 1872, 8vo.
- Crole, D.—Tea: a Text book of Tea Planting and Manufacture. *Illustr.*, 1897, 8vo.
- Crooke, W.—Popular Religion and Folk-lore of Northern India. *Illustr.*, 2 vols., 1896, 8vo.
- Cunningham, J. T.—Natural History of the marketable Marine Fishes of the British Isles. *Illustr.*, 1896, 8vo.
- Dana, J. D.—Corals and Coral Islands. *Illustr.*, 1890, 8vo.
- Dauids, T. W. R.—Origin and Growth of Religion, as illustrated by the History of Indian Buddhism. *Hilbert Lectures* 1891, 8vo.
- Delage, T. and E. Héronard.—Traité de Zoologie concrète. Vol., I, *Illustr.*, 1896, 8vo.
- Demmin A.—Illustrated History of Arms and Armour. Translation. *Illustr.*, 1894, 8vo.
- Dresser, C.—Art of Decorative Design. *Illustr.*, 1862, 8vo.
- Do. Principles of Decorative Design. *Illustr.* 4to.
- Engel, C.—Introduction to the study of National Music, 1866, 8vo.
- Do. Music of the most Ancient Nations, particularly of the Assyrians, Egyptians, and Hebrews. *Illustr.*, 1864, 8vo.
- Études d'Entomologie de la Variation chez les Lepidoptères, 20 parts. *Illustr.*, 1876—96, 4to.
- Fagan, L.—Collector's Marks, *Illustr.*, 1883, 8vo.
- Fauna and Flora des Golfes von Neapel, Mon 24, 1897.
- Figuier, L.—Primitive Man. *Illustr.*, 1876, 8vo.
- Frere, M.—Old Deccan Days; or Hindu Fairy Legends current in Southern India. *Illustr.*, 1868, 8vo.
- George, H.—Progress and Poverty, 1890, 8vo.
- Goebel, K.—Outlines of Classification and special Morphology of Plants. *Illustr.* New edition of Sach's text-book of Botany, Book II. Translation, 1887, 8vo.
- Green, E. E.—Coccidæ of Ceylon. *Illustr.*, Part, I 1896, 8vo.
- Haeckel, E.—History of Creation. Translation. *Illustr.*, 2 vols., 1876, 8vo.
- Hall, W. E.—Treatise on International Law, 1895, 8vo.
- Halliburton, W. D.—Text-book of Chemical Physiology and Pathology. *Illustr.*, 1891, 8vo.
- Hanley, S.—Conchologia Indica. Illustrations of Land and Freshwater Shells of British India. *Illustr.*, 1876, 4to.
- Holtzapfel, C.—Turning and Mechanical Manipulation. *Illustr.*, 5 vols., 1850—84, 8vo.
- Hooker, Sir J. D., and B. D. Jackson.—Index Kewensis Plantarum Phanerogamarum, 2 vols., 1895, 4to.
- Hopkins, A. A.—Scientific American Cyclopaedia of Receipts, Notes and Queries, 1895, 8vo.
- Huxley, I. H.—Introduction to the Classification of Animals. *Illustr.*, 1869, 8vo.
- Jaeger, G.—Problems of Nature: Researches and Discoveries. Translation, 1897, 8vo.
- Junius.—Letters. [*Routledge's Popular Library*], 1890, 8vo.
- Kent, W. S.—The Naturalist in Australia. *Illustr.*, 4to.
- Keynes, J. N.—Studies and Exercises in formal Logic, 1894, 8vo.
- Latham, R. G.—Ethnology of India, 1859, 8vo.
- Lawrence-Archer, J. H.—Orders of Chivalry. *Illustr.*, 1887, 4to.
- Lockyer, J. N.—Contribution to Solar Physics, *Illustr.*, 1874, 8vo.
- Lubbock, Sir J.—Pleasures of Life, 1896, 8vo.
- McLennan, D.—Patriarchal Theory. Based on the papers of J. F. McLennan, 1885, 8vo.
- M'Lennan, J. F.—Studies of Ancient History. Second series, 1896, 8vo.
- Mill, J. S.—On Liberty, 1892, 8vo.
- Monat, F. J.—Adventures and Researches among the Andaman Islanders, 1863, 8vo.
- Müller, Max.—Contributions to the Science of Mythology, 2 vols., 1897, 8vo.
- Müller, F. Max.—Lectures on the Origin and Growth of Religion as illustrated by the Religions of India, 1891, 8vo.
- Do. Vedānta Philosophy. Lectures, 1894, 8vo.
- Do. Sacred books of the East, Vols. XXIII, XXV—XLIII, XLV—XLVII and XLIX.
- Nasmyth, J., and J. Carpenter.—The Moon considered as a Planet, a World, and a Satellite. *Illustr.*, 1885, 8vo.
- Pitman, I.—Short-hand Dictionary, 7th Ed., 8vo.
- Ploss, H.—Das Weib in der Natur-und Völkerkunde. *Illustr.*, 2 vols., 1897, 8vo.
- Pouchet, F. A.—The Universe: or the infinitely great and the infinitely little. *Illustr.*, 8vo.
- Proctor, R. A.—Orbs around us, 1881, 8vo.
- Proctor, R. A.—Expanse of Heaven [*"Knowledge" Library*], 1889, 8vo.

- Pugin, A.—Specimens of Gothic Architecture; selected from the various Ancient Edifices in England. Text and plates, 4 Vols., 1895, 4to.
- Quain, R.—Dictionary of Medicine, 2 Vols., 1895, 8vo.
- Quetelet, A.—Anthropométrie, ou Mesure des différentes Facultés, 1871, 8vo.
- Ratzel, F.—History of Mankind, Parts 16—22.
- Redgrave, R.—Manual of Design. *Illustr.*, 8vo.
- Rousselet, L.—India and its Native Princes: Travels in Central India, Bombay and Bengal. *Illustr.*, 1876, 8vo.
- Ruskin, J.—Aratra Pentelici: Lectures on the Elements of Sculpture. *Illustr.*, 1890, 8vo.
- Do. Architecture and Painting: Lectures. *Illustr.*, 1891, 8vo.
- Do. Ariadne Florentina: Lectures on Wood and Metal Engraving. *Illustr.*, 1890, 8vo.
- Do. Art Lectures, 1892, 8vo.
- Do. Crown of Wild Olive: Lectures on Industry and War, 1894, 8vo.
- Do. Eagle's Nest: Lectures on the Relation of Natural Science to Art, 1894, 8vo.
- Do. Ethics of the Dust: Lectures on the Elements of Crystallization 1894, 8vo.
- Do. A Joy for ever: Lectures on the Political Economy of Art, 1893, 8vo.
- Do. Modern Painters. 2 Vols., 1897, 8vo.
- Do. Music. Edited by A. M. Wakefield, 1894, 8vo.
- Do. Queen of the Air: Study of the Greek Myths of Cloud and Storm, 1895, 8vo.
- Do. St. Mark's Rest: History of Venice, 1884, 8vo.
- Do. Seven Lamps of Architecture. *Illustr.*, 1897, 8vo.
- Do. Stones of Venice: For the Use of Travellers in Venice and Verona, 2 Vols., 1894, 8vo.
- Do. Time and Tide by Weare and Tyne: Lectures on the Laws of Work, 1894, 8vo.
- Do. Two Paths: Lectures on Art in its Application to Decoration and Manufacture, 1891, 8vo.
- Do. Val D'Arno: Lectures on Tuscan Art. *Illustr.*, 1890, 8vo.
- Do. Verona and other Lectures. *Illustr.*, 1894, 8vo.
- Do. Bibliotheca Pastorum, 1876—85.—Vol. I. Economist of Xenophon, Translation, Vol. II.—Rock Honey Comb. Broken Pieces of Sir Philip Sidney's Psalter, Vol. IV. - A Knight's Faith. Passages in the Life of Sir Herbert Edwardes.
- Scott, Sir, W.—Waverly Novels. *Illustr.*, 48 Vols., 8vo.
- Semon, R.—Zoologische Forschungs: Reisen in Australien und dem Malayischen Archipel, Vol. II, Part V, Vol. III, Part II, and Vol. IV, Part I. Text and Atlas, 4to.
- Semper, C.—Reisen im Archipel der Philippinen, II Theil. Bd. VII. Abth. IV, 1897.
- Shakespeare.—Mad Folk. Bucknill, 1867, 8vo.
- Do. Medical Knowledge. Bucknill, 1860, 8vo.
- Sherring, H.—The Mayo College: "The Eton of India," 1875—1895, *Illustr.*, 1897, 4to.
- Shortt, J.—Manual of Indian Cattle and Sheep, *Illustr.*, 1889, 8vo.
- Sirr, H. C.—Ceylon and the Cingalese, 2 Vols., 1850, 8vo.
- Smith, Major R. M.—Persian Art, *Illustr.*, 8vo.
- Stanhope (Philip Dormer, Earl of Chesterfield).—Letters to his Son. Selected by C. Sayle, 8vo.
- Stormonth, J.—Manual of Scientific Terms, 1897, 8vo.
- Story of the Nation.—Vedic India. Z. A. Ragozin, 1895, 8vo.
- Strasburger, E.—Hand-book of Practical Botany, *Illustr.*, Translation, 1897, 8vo.
- Temple, Sir R.—Men and Events of my Time in India, 1892, 8vo.
- Do. Oriental Experience. Essays and Addresses, *Illustr.*, 1883, 8vo.
- Do. Story of my Life, 2 Vols., 1896, 8vo.
- Thompson, S. P.—Dynamo-electric Machinery, *Illustr.*, 1896, 8vo.
- Thomson, J. J.—Notes on recent Researches in Electricity and Magnetism, *Illustr.*, 1893, 8vo.
- Tylor, E. B.—Researches into the early History of Mankind and the Development of Civilization, 1878, 8vo.
- Weber, Max.—Zoologische Ergebnisse einer Reise in Neiderlandisch Ost Indien, Vol. IV, Part I.
- Westwood, J. O.—Mantidarum Familiæ Revisio, *Illustr.*, 1889, fol.

APPENDIX E.

CLASSIFIED List of Expenditure of the Government Museum during the year 1897—98.

		Actuals, 1897-98.	Revised estimate, 1897-98.
Salaries—			
Superintendent	.. .. .	RS. 3,631	RS. 3,585
Exchange Compensation Allowance	.. .. .	332	358
Local allowance	.. .. .	213	213
Total	..	4,176	4,156

Classified List of Expenditure of the Government Museum during the year 1897-98—*cont.*

	Actuals, 1897-98.	Revised estimate, 1897-98.
	RS.	RS.
Permanent Establishment—Government Museum—		
First Assistant, second assistant, first, second and third taxidermists, herbarium-keeper, artist, writer, assistant writer, thirteen hamals, six gallery attendants, Superintendent's peon, door-keeper, chikledar and two peons—33 persons	7,094	7,108
Temporary Establishment—Government Museum—		
Collecting taxidermist, three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller and chokra—15 persons	1,070	1,077
Permanent Establishment—Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons	2,145	2,150
Temporary Establishment—Connemara Public Library—		
Servant (sweeper)—1 person	41	47
Total Establishment ..	10,350	10,382
Allowance—		
Travelling allowance	817	900
Supplies and Services—		
Cost of specimens purchased on tour	324	900
Objects of interest and coins purchased at headquarters	960	512
Fittings, furniture, &c., for the collections	3,151	3,000
Cost of books and publications	1,875	1,800
Library	2,004	2,000
Lithographing plates .. ..	..	..
Ammunitions	12	15
Charges for feeding live animals	137	60
Expenses—		
Reading coins	6	10
Measurement	111	35
Total, supplies and services ..	8,580	8,332
Contingencies—		
Purchase of country articles each costing less than Rs. 50	122	100
Subscription to newspapers	(4 annas)	25
Cost of Europe stores (including freight)	167	730
Landing and shipping charges	33	11
Repairs to furniture	96	100
Gardening expenses	60	60
Wages and cooly	210	135
Cleaning charges	67	27
Supply of drinking water	3	5
Scavenging expenses	46	45
Postage charges	178	180
Telegraph charges	6	20
Rents, rates and taxes	3,843	3,843
Binding charges	302	300
Packing charges	(6 annas)	..
Lighting charges	83	85
Petty carriages and cooly charges	235	156
Clothing of servants	88	100
Office expenses, including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes, match-boxes	16	35
Miscellaneous	3	..
Total, Contingencies ..	5,558	5,957
Grand Total ..	29,481	29,000

APPENDIX F.

LOCAL MUSEUMS AND SHOW-ROOMS.

With reference to G.O., No. 515, Educational, dated 24th August, 1896, I have the honour to express my views in connection with the suggestion relating to local museums and show-rooms referred to in paragraph 5 of the letter from the Government of India printed therewith.

2. The resolution of the Lahore Art Conference, 1894, with which I have to deal was to the effect that, "in all places at which there are distinct local industries, small museums, or more correctly show-rooms, should be established, in which type collections, illustrative of those industries, should be placed and kept up. That they should be under the supervision of the local authorities, but be inspected periodically by the Superintendent of the Provincial Museum, without whose approval no objects should be kept permanently as types."

3. I may, at the outset, express my decided opinion that no museum, however small, can flourish under amateur management, even if subject to the general control of a professional museum officer with power to make inspections, which must of necessity be few and far between.

4. In 1843, General Cullen proposed to form a small museum in each Collectorate under the care of the Collector, the Medical officer and Engineer, in which might be stored specimens of the various economic products of the districts. Eight years later, in 1851, the year of the Great Exhibition—the Honourable the Court of Directors expressed their approval of the establishment of a Central Museum at the Presidency and of local repositories in the interior. In 1855, museums were established at Bellary, Coimbatore, Cuddalore, Mangalore, Ootacamund and Rajahmundry, managed by a committee composed of the principal residents of the respective localities, and in connection with the Central Museum. In the Minutes of Consultation, No. 214, Public, dated 16th February 1855, it is noted that "it must be borne in mind that the Honourable Court, when according sanction to the partial establishment of such museums, desired that they should be considered chiefly as repositories for the collection and transmission to the Central Museum of the interesting objects afforded by their respective localities." I am unable from the records at my disposal to trace the brief career of these local museums, which, however, appear to have died a natural death from want of funds, skilled supervision, practical scope and other causes.

5. My object in referring to these historic details is to show that the organization of small local museums or show-rooms is no new idea so far as the Madras Presidency is concerned, but a scheme which has been put to the test and failed.

6. My policy in the direction of the Madras Museum, which has been carried out during the last twelve years, has been to organize it on a geographical basis and make it fulfil the requirements of a reference guide to the natural history, arts, industries, economic resources, archæology, &c., of Southern India. And, in a lecture printed with my annual report, 1895-96, I stated that "I have clearly mapped out in my head a scheme which will be put into action, now that increased space is placed at my disposal, for the development of a section, already existing in a rudimentary state, devoted to the illustration of the economic resources and industries, and the establishment of what I would call an economic and industrial museum." In reviewing the annual report, Government expressed its thorough approval of my "view that the technical and economic side of the museum should be extended and developed as far as is possible. District officers have it in their power to render the Superintendent material assistance in this direction." The scheme referred to above has since been put in action, and the arrangement of the art and industrial galleries of the museum new buildings is fast approaching completion so far as existing material is concerned. Much remains, however, to be added hereafter in order that the collections may constitute an exhaustive index to the arts and industries of Southern India; and I am strongly of opinion that the development of the Madras Museum, with the assistance of the district officers, who might do much for it in consultation with the Superintendent in acquiring typical samples of local arts and industries, &c., is of greater importance than the establishment of small local museums.

7. The question of the maintenance of indigenous arts and industries at a high standard of excellence is almost beyond the scope of the present letter, but it is one in which the art and industrial sections of the Madras Museum should be directly concerned, and I shall refer to it at length in my forthcoming monograph on cotton fabrics, which afford a melancholy example of industrial decline, the course of which no small museum or show-room at Madura, Tanjore, or other district centres could retard.

8. It seems to me that, at any rate in the Madras Presidency, the exhibition of local industries in the manner proposed by the Lahore Conference would serve no really useful purpose such as would justify the cost of their establishment and maintenance. To take, as an example, Tanjore mixed-metal ware. The exhibition of this ware in a small museum or show-room in Tanjore, where the industry is perfectly well-known, would do very little, if any good to those engaged in the industry, who should be able to protect their own interests without State aid. But I have often wondered that the Tanjore metal-workers, Trichinopoly pith-modellers, Vellore

brass-workers, and others, do not, as is done in some of the big cities of Northern India, have stalls on the railway platforms, especially in the cold weather, for the sale of their wares, mainly to itinerant "globe-trotters." The establishment of such stalls, under some organized arrangement by which only the sale of articles of recognized merit was permitted, would, it appears to me, be more practical and effective than museums or show-rooms, which might easily escape the attention of those for whom they are intended.

9. In recent years a Jubilee Museum has been erected at Bezwada, and an incident, which occurred in connection therewith, may be cited as an example of the danger with which the interests of the Madras Museum would be threatened by the establishment of peripheral museums. The building erected, it became necessary to make an attempt to justify its existence, and Government agreed that, as a temporary measure, some of the Amarávati marbles should be deposited there. I, however, pointed out that "it would be well that such of the marbles still remaining at Amarávati as are sufficiently well preserved for exhibition should be transferred directly to the Government Museum rather than, as a temporary measure, to the Bezwada Museum. The Amarávati marbles are already divided between two institutions—the British Museum and Madras Museum—and it would, I think, be a very great pity that they should be still further divided." The marbles were accordingly transferred to Madras. The incident is referred to as showing that the establishment of small district museums must inevitably end in a clashing of their interests with those of the Madras Museum, which is in every way undesirable.

(Signed) E. THURSTON.

APPENDIX G.

PLANTS collected on the Shevaroy Hills.

1. Ranunculaceæ—
Clematis Gouriana, Roxb.
5. Menispermaceæ—
Stephania rotunda, Lour.
Cyclea peltata, Hf. & Tr.
13. Violaceæ—
Viola Patrinii, D.C.
15. Pittosporæ—
Pittosporum nilghirense, W. & A.
16. Polygalæ—
Polygala persicariæfolia, D. C.
" chinensis, L.
18. Caryophyllæ—
Stellaria media, L.
26. Malvaceæ—
Sida carpinifolia, L.
Decaschistia crotonifolia, W. & A.
Hibiscus solandra, L'Her.
27. Sterculiaceæ—
Waltheria indica, L.
29. Linææ—
Erythroxylon monogynum, Roxb.
32. Geraniaceæ—
Oxalis corniculata, L.
Impatiens diversifolia, Wall.
" balsamina, L.
33. Rutaceæ—
Evodia Roxburghiana, Benth.
37. Meliaceæ—
Cedrela Toona, Roxb.
41. Celastrineæ—
Gymnosporia Heyneana, W. & A.
43. Ampelideæ—
Vitis tomentosa, Heyne.
" araneosus, Dalz.
" pedata, Vahl.
44. Sapindaceæ—
Allophyllus Cobbe, Bl.

50. Leguminosæ—

- Crotalaria rubiginosa*, Willd.
 „ *calycina*, Schrank.
 „ *madurensis*, Wight.
Indigofera trifoliata, L.
 „ *Wightii*, Grah.
Tephrosia tinctoria, Pers.
Pycnospora hedyaroides, R. Br.
Pseudarthria viscida, W. & A.
Desmodium scalpe, D.C.
 „ *gyrans*, D.C.
 „ *gyroides*, D.C.
Vigna vexillata, Bth.
Dolichos falcatus, Klein.
Atylosia albicans, Bth.
 „ *rugosa*, W. & A.
Dunbaria ferruginea, W. & A.
Rhynchosia filipes, Bth.
Flemingia strobilifera, R. Br.
 „ *Grahamiana*, W. & A.
Sophora glauca, Lesch.
Cassia mimosoides, L.

54. Droseraceæ—

- Drosera peltata*, Sm.

65. Cucurbitaceæ—

- Bryonia laciniosa*, L.
Zehneria Hookeriana, Arn.

70. Umbelliferæ.

- Bupleurum mucronatum*, W. & A.
Pimpinella Heyneana, Wall.

74. Rubiaceæ.

- Canthium umbellatum*, Wight.
Spermacoce? stricta, Lf.

77. Compositæ.

- Ageratum conyzoides*, L.
Wedelia urticæfolia, D.C.
Gynura nitida, D.C.
Emilia sonchifolia, D.C.

80. Campanulaceæ.

- Campanula fulgens*, Wall.

88. Myrsinææ.

- Mæsa indica*, Wall.
Embelia Ribes, Burm.
 „ *viridiflora*, Scheff.

92. Oleaceæ.

- Jasminum Ritchiei*, Clarke.
 „ *rigidum*, Zenk.

95. Asclepiadææ.

- Cynanchum callialata*, Ham.
Dregea volubilis, Benth.
Ceropegia tuberosa, Roxb.

100. Boragineæ.

- Cynoglossum furcatum*, Wall.
 „ *denticulatum*, D.C.

101. Convolvulaceæ.

- Lettsomia elliptica*, Wight.
Evolvulus alsinoides, L.

102. Solanaceæ.

- Nicandra physaloides*, Gærtn.

103. Scrophularinææ.

- Ilysanthes hyssopioides*, Benth.
Bonnaya veronicæfolia, Spr.
Striga lutea, Lour.
Sopubia delphinifolia, Don.
Pedicularis zeylanica, Bth.

105. *Lentibulariæ*.
Utricularia? *Wallichiana*, Wight.
 „ *orbiculata*, Wall.
109. *Acanthaceæ*—
Strobilanthes *Kunthianus*, T. Anders.
 „ *pulneyensis*, Clarke.
Asystasia *chelonoides*, Nees.
Justicia *diffusa*, Willd.
 „ *procumbens*, L.
112. *Labiataæ*—
Plectranthus *incanus*, Lint.
Pogostemon *rotundatus*, Benth.
Leucas *montana*, Spr.
 „ *vestita*, Benth.
 „ *aspera*, Spr.
116. *Amarantaceæ*—
Amarantus *spinosus*, L.
119. *Polygonaceæ*—
Polygonum *alatum*, Ham. Ms.
123. *Aristolochiaceæ*—
Aristolochia *indica*, Linn.
124. *Piperaceæ*—
Piper *Wightii*, Mig.
Peperomia *dindigulensis*, Mig.
128. *Laurineæ*—
Litsæa *zeylanica*, C. and F. Nees.
135. *Euphorbiaceæ*—
Phyllanthus *simplex*, Retz.
 „ *Wightianus*, Muell.
Breynia *patens*, Benth.
Antidesma *menasu*, Miquel.
Acalypha *paniculata*, Miquel.
 „ *fruticosa*, Forsk.
Mallotus ! *albus*, Muell.
 „ *philippinensis*, Muell.
Tragia *involucrata*, L.
Sebastiania *chamælea*, Muell.
136. *Urticaceæ*—
Dorstenia *indica*, Wall.
Girardinia *heterophylla*, Decne.
Procais *lævigata*, Blume.
Boehmeria *platyphylla*, Don.
Pouzolzia *auriculata*, Wight.
 „ *caudata*, Benn.
 „ *Bennettiana*, Wight.
Debregeasia *velutina*, Gaud.

(Signed) A. G. BOURNE.

APPENDIX H.

PLANTS collected in the South Arcot District.

On the Tiruvanamalai hill there was one tiny little spring, forming a swamp of about a square yard in extent, where I collected *Portulaca oleracea*, L., *Bergia ammannioides*, Roxb., *Osbeckia truncata*, Arn. *Ammannia baccifera*, L., *Ludwigia parviflora*, Roxb. *Hydrolea zeylanica*, Vahl., *Herpestis Monnieria*, H.B.K., *Lippia nodiflora*, Rich., besides several grasses and sedges—a veritable little oasis in the desert.

Of weeds, &c., which are to be found almost everywhere, and apparently under even the most severe conditions, without any obvious special adaptation to their surroundings, were:—

- Cocculus villosus*, D.C. in shaded hedges.
- Gynandropsis pentaphylla*, D.C., following cultivation.
- Cadaba indica*, Lamk.
- Ionidium suffruticosum*, Ging.
- Sida humilis*, Wild.
- „ *rhombifolia*, L.
- „ *carpinifolia*, L.

Abutilon indicum, Don., on river banks at Chengam.
Cardiospermum Halicacabum, L.
Indigofera enneaphylla, L.
Tephrosia villosa, Pers.
Æschynomene indica, L., at the bottom of the tanks.
Cassia occidentalis, L.
 „ *Sophora*, L.
 „ *auriculata*, L.
 „ *Abrus*, L.
Trianthema monogyna, L., a somewhat succulent plant.
Mollugo Spargula, L.
Hemidesmus indicus, Br.
Calotropis gigantea, Br., survives owing to its poisonous character.
Leptadenia reticulata, W. & A.
Evolvulus alsinoides, L.
Lettsomia elliptica, Wight.
Ruellia prostrata, Lamk.
Justicia Betonica, L., on river bank at Chengam.
 „ *diffusa*, Willd.
Ocimum sanctum, L.
Leucas aspera, Spreng.
Boerhaavia repens, L.
Ærua lanata, Juss.
Achyranthes aspera, L.
Polygonum barbatum, L.
Aristolochia indica, Retz., on the lower slopes.
Cassytha filiformis, L., parasitic.
Euphorbia pilulifera, L.
Phyllanthus reticulatus, Poir.
 „ *Niruri*, L.
Acalypha indica, L., near wells and habitations.

The plants most abundantly present exhibited some special modifications, chiefly in the direction of economising a very limited water-supply, or of protection from goats and cattle, where everything more desirable had already been consumed. The leaves of the woody plants were small and few in number; the majority were thorny or spiny; a few were fleshy with a thick and tough epidermis, and a few resinous, and so retarding evaporation.

The following species were observed, and, unless otherwise stated, they occur in the plains:—

Argemone mexicana, L., very widely spread in inhabited districts; very prickly.
Capparis spinosa, Lamk., thorny; hills only.
 „ *divaricata*, Lamk., thorny.
Flacourtia sepiaria, Roxb., thorny bush.
Tribulus terrestris, L., spiny.
Toddalia aculeata, Pers., spiny.
Atalantia monophylla, Corr., spiny; hills only.
Olex scandens, Roxb., prickly.
Zizyphus Jujuba, Lamk., prickly.
Vitis quadrangularis, Wall., fleshy.
Dodonaea viscosa, L., contains much resin.
Rhus mysorensis, Heyne., spiny.
Zornia diphylla, Pers., prickly.
Cæsalpinia Bonduca, Roxb., prickly.
Prosopis spicigera, L., prickly.
Dichrostachys cinerea, W. & A., spiny.
Acacia Sundra, D.C., spiny.
 „ *pennata*, Willd., prickly.
Opuntia Dillenii, Haw., spiny and fleshy.
Alangium Lamarekii, Thw., spiny.
Randia uliginosa, D.C., spiny.
 „ *dumetorum*, Lamk., spiny.
 „ *malabarica*, Lamk., spiny.
Canthium parvifolium, Roxb., spiny.
Azima tetracantha, Lamk., spiny.
Carissa Carandas, L., spiny.
 „ *spinarum*, A.D.C., spiny.
Sarcostemma intermedia, Dene., fleshy.
Solanum indicum, L., prickly.
 „ *xanthocarpum*, Schrad., prickly.
Barleria buxifolia, L., prickly.
 „ *noctiflora*, L., prickly.

Lepidagathis cristata, Willd., spiny; one of the commonest weeds.

Gmelina asiatica, L., spiny.

Leonotis nepetæfolia, Br., spiny.

Celosia argentea, L., scarious.

Amaranthus spinosus, L., spiny.

Asparagus racemosus, Willd., spiny.

The trees, &c., all of which may have been planted in that particular locality, observed were:—

Anona squamosa, L., Chengam.

Cochlospermum Gossypium, D.C., lower slopes.

Shorea Talura, Roxb., lower slopes.

Thespesia populnea, Corr., road-sides.

Bombax malabaricum, D.C., lower slopes.

Feronia Elephantum, Corr., Tiruvanamalai.

Ægle Marmelos, Corr., Tiruvanamalai and the hills.

Ailanthus excelsa, Roxb., Chengam.

Protium caudatum, W. & A., lower slopes.

Melia Azadirachta, L.

Soyimida febrifuga, Juss., lower slopes.

Chloroxylon Swietenia, D.C., Tiruvanamalai and the hills.

Sapindus trifoliatum, L.,

Mangifera indica, L., road-sides.

Odina Wodier, Roxb.,

Spondias mangifera, Willd., near the bungalow at Tiruvanamalai.

Abrus precatorius, L., widely spread.

Butea frondosa, Roxb., Tiruvanamalai and the hills.

Dalbergia latifolia, Roxb.,

Pterocarpus Marsupium, Roxb.,

Pongamia glabra, Vent., road-sides.

Peltophorum ferrugineum, Benth., road-sides.

Parkinsonia aculeata, L., road-sides.

Cassia Fistula, L., Tiruvanamalai and the hills

„ *siamea*, Lamk., Chengam.

Hardwickia binata, Roxb., Chengam.

Tamarindus indica, L., road-sides.

Albizia Lebbek, Benth., Tiruvanamalai and the hills.

„ *amara*, Boiv., lower slopes.

Terminalia belerica, Roxb., the hills.

„ *Chebula*, Retz.,

„ *Arjuna*, Bedd.,

„ *tomentosa*, Bedd.,

Anogeissus latifolia, Wall.,

Eugenia Jambolana, Lamk., Tiruvanamalai and the hills.

Bassia longifolia, L., road-sides, etc.

„ *latifolia*, Roxb.,

Wrightia tinctoria, Br., Tiruvanamalai and the hills.

„ *tomentosa*, R. and S.,

Strychnos Nux-vomica, L.,

„ *potatorum*, L.,

Datura Stramonium, L., Chengam.

Dolichandrone falcata, Seem., Tiruvanamalai.

Tectona grandis, L., the hills.

Premna tomentosa, Willd., the hills.

Santalum album, L., Tiruvanamalai and the hills.

Phyllanthus Emblica, L.,

Bridelia retusa, Spreng., the hills.

Givotia rottleriformis, Griff., Tiruvanamalai.

Ficus bengalensis, L., road-sides.

„ *religiosa*, L.,

„ *glomerata*, Roxb.,

Phœnix sylvestris, Roxb., Tiruvanamalai and the hills.

Borassus flabellifer, L., road-sides.

Cocos nucifera, L.,

Bamboos are very plentiful on the hills, and most of them had just been in flower, and were dead. The Cyperaceæ and Gramineæ were not determined.

The following were also observed as occurring:—

Uvaria Narum, Wall., the hills.

Hugonia Mystax, L., Tiruvanamalai.

Erythroxylon monogynum, Roxb., Tiruvanamalai.

Clausena, sp., Tiruvanamalai.
Protium caudatum, W. and A., lower slopes.
Euonymus, sp., lower slopes.
Ventilago madraspatana, Gärtn., Tiruvanamalai.
Semecarpus Anacardium, L., the hills.
Bauhinia tomentosa, L., Tiruvanamalai and the hills.
 „ *variegata*, L., Tiruvanamalai.
Acacia lencophlæa, Willd., Tiruvanamalai and the hills.
Gyrocarpus Jacquini, Roxb., the hills.
Casearia tomentosa, Roxb., Tiruvanamalai and the hills.
Cucumis trigonus, Roxb., Tiruvanamalai.
Heptapleurum stellatum, Gärtn., the hills.
Ixora parviflora, Vahl., Tiruvanamalai and the hills.
Morinda citrifolia, L., widely spread.
Rubia cordifolia, L., the hills.
Vernonia Roxburghii, Less., the hills.
Ageratum conyzoides, L., „
Embelia floribunda, Wall., „
Ardisia humilis, Vahl., „
Maba buxifolia, Pers., widely spread.
Diospyros montana, Roxb., Tiruvanamalai and the hills.
Jasminum, sp., the hills.
Thunbergia Hawtayneana, Wall., the hills.
Asystasia coromandeliana, Nees., „
Justicia glabra, Koen., the hills.
Priva leptostachya, Juss., the hills.
Vitex Negundo, L., Tiruvanamalai.
 „ *alata*, Heyne, „
Anisomeles malabarica, Br., the hills.
Digera arvensis, Forsk., Tiruvanamalai and the hills.
Cassytha filiformis, L., Tiruvanamalai.
Loranthus longiflorus, var *bicolor*, Desr., Tiruvanamalai.
Tragia involucrata, L., Tiruvanamalai.
Gnetum scandens, Roxb., the hills.

(Signed) A. G. BOURNE.

APPENDIX I.

SUGAR-CANE DISEASE.

I arrived at Cocanada on Monday 21st, and spent the 22nd—25th in examining the sugar-cane. I returned by steamer this morning, and submit a report at once, as, if anything can be done, it should be done quickly. I have, in anticipation of the approval of Government, informed the Collector and some members of the Chamber of Commerce that the ryots should be induced by all possible means to root up the old stools, to burn all litter, to examine “tops” before planting, and to plant only on land where paddy was last year.

The cutting and crushing is now going on, and new planting will begin by the next new moon.

I think it would be desirable if Government were to call for a report as to the extent of the disease in all cane-growing districts. In such an enquiry it would, I think, be sufficient to ask whether any of the canes exhibited red spots or patches in their flesh. The ryots would have noticed such at the time of crushing. The damage done in the eastern delta at any rate is very great; from the forward crops which have been crushed, only half the usual yield of jaggery has been obtained, while from many still standing much less will be obtained.

Sugar-cane disease in the Gódvári Deltas and neighbourhood.

1. *Introduction*.—My attention was drawn to this matter by letters from the Collector of the district and from Messrs. Wilson & Co. of Madras.

Numbers of canes in certain localities were reported to be withering, and the evil was generally ascribed to the ravages of some insects.

A great variety of insects were sent to me, some perfectly harmless to the canes, others undoubtedly capable of doing damage. I do not propose to deal with these here, as the total damage done by them in the gardens I have examined is infinitesimal as compared with that done by a fungoid growth.

This growth produces all the symptoms characteristic of an attack by *Trichosphaeria sacchári*, Massee.

This is the fungus which has recently threatened to extinguish the sugar industry in Barbados. Different stages in its life history have been known as the "root fungus," and "rind fungus," respectively. I find both stages present, and great damage is being done; and, unless some measures to check the progress of the disease are adopted at once, matters will go from bad to worse.

Mr. Maxwell of Messrs. Wilson & Co. kindly secured me the services of several gumastas, and we visited a great number of "gardens"—as the sugar-cane plantations are there called—and interviewed the ryots. All the gardens we examined, among which were several reported to be quite healthy, showed much disease, and, now that I have pointed out what the symptoms really are, I gather from what I have been told that the disease is pretty widely spread along the whole coast, perhaps even to Ganjám, and that it is no new thing this year, but has been gradually coming on for some years. It is, however, only this year that the results have been sufficiently marked to cause it to have been brought to the notice of the Collector and Chamber of Commerce. It has evidently now taken a thorough hold of this district, such as is likely, in my opinion, to be infinitely worse next year, unless prompt and concerted measures are taken to check it.

2. *Symptoms.*—Canes but slightly affected, *i.e.*, only recently attacked, show no external signs of disease, but transverse sections show one or more bright red spots in one or more internodes, and, if these are followed up by longitudinal sections, they appear as red streaks which branch at the nodes. It is the fibro-vascular bundles which become coloured. Such slight attacks usually occur somewhere about the middle of the length of the cane. Where the disease is more advanced, the colouration extends also to the ground tissue, so that any section shows red patches. Subsequently the central portion of each red patch becomes opaque and white, and acquires a texture like that of a "woolly" radish. The tissue is, in fact, dead. Where the disease is still further advanced, portions first at the nodes, and later elsewhere, become black, and at this stage or before the leaves at the top wither, and the entire cane dies up. Some of the canes only were attacked when sufficiently young to give time for the disease to run its full course; others were attacked at later stages, and are yielding a certain amount of juice. Wherever the fungus has been growing in the cane for a sufficient length of time, small black, minutely velvety spots are to be found among the sleeping roots, which look like warts on the nodes. These spots are groups of myriads of spores ready to be distributed by the wind.

Each garden which I examined showed the disease in all its stages; contained, in fact, plants which had been attacked at different periods.

3. *Methods adopted by the ryots which bear upon the spread of the disease.*—The only crop raised in rotation with sugar-cane by most of these ryots is paddy, and it appears to be the general custom to keep a particular plot as a sugar-cane garden for two years, to plant paddy in the third year, and then revert to sugar-cane. The sugar-cane crop of the first year is raised by planting "tops." Before the canes are passed through the crushing mill, the upper portion with the leaves is cut off. This, when trimmed, constitutes a "top." The "tops" are put together in a heap loosely covered up with leaves, and are planted out after about four or five weeks, so that they remain exposed to any spores which may be about in the air for a considerable time; during this some of them are doubtless attacked.

If sufficient "tops" are not available, any joint, *i.e.*, any internode with a couple of nodes showing buds, is used.

The land from which paddy has been recently harvested is ploughed, dry if possible, after soaking if necessary. The "tops" are laid out in rows, trampled in, and after sprouting has begun, furrows are made and irrigation commences. The second-year crop is raised by ratooning, *i.e.*, the stools of the previous crop are left in the ground, and new shoots grow from them. If a second-year crop has been very good, a third-year crop is sometimes attempted in the same way, but this does not appear to be the custom. Nor, apart altogether from this disease, do the ryots seem to expect a third-year crop to be a good one. The canes, they say, are likely to be thin and without much juice. This ratooning seems, under ordinary circumstances, to give very good results for one year. I may, however, at once point out that, when this disease is present, to attempt a second-year crop by this method is not only absolutely suicidal, but helps to spread the disease. Almost all the second-year crops now being cut are worse than the first-year ones, and the stools which are now being left to sprout are, I find, almost all infected, so that next year's crops grown from them are almost sure to be complete failures. I expect the shoots, infected as they will be from the very first, will soon wither.

In most gardens a certain number of canes are cut from day to day and sold for "chewing," and fetch about 2 pies each at the garden. The "chewing" season lasts from about January to March. When the bulk of the canes is ripe, a mill is erected in nearly every garden, the cutting commences in earnest, and the crushing goes on day and night on some gardens at any rate. About ten coolies and six pairs of buffaloes are employed at each mill. The leaves are given to the buffaloes, the "tops" are put aside as described above, the crushed stems are spread out upon the ground to dry, and, when dry, are used as fuel for the boiling which takes place on the spot. The ash and scum are used as manure, and any fuel unused is stacked. At all the mills I visited the procedure was identical.

4. *The way in which the disease is spread.*—This disease is actually caused by the fungus. Insects may damage some of the canes. The quality of the water, the use of unsuitable manure, or the exhaustion of the soil may cause a weak crop, but it must be clearly understood that, if spores of this fungus enter its tissues, the strongest and healthiest cane will be attacked. It is the spread of the spores of the fungus which we must endeavour to check, and, unless this is done, no other measures are likely to have any beneficial result.

The spores are extremely minute, and occur in inconceivable numbers in the little black patches on the surface, as well as inside the tissues of every diseased cane. They are capable of being dried up without losing their vitality, and, in this condition, are blown about by the wind. There is no doubt but that, in an infected area, spores are constantly settling everywhere in the form of impalpable dust particles. We have thus to deal with a most insidious foe. The greater portion of the surface of the cane is protected by a hard cuticle, but the spores easily effect an entry at the broken leaf bases, and the attack usually commences here. They also enter at any spot where the surface is injured, or at a hole made by a boring insect, or at a crack caused by exposure to sun or dry wind. Where the fungus exists in a stool or in a planted "top," it will assuredly grow into the young plant which shoots up thence. It is evident that some of the methods adopted by the ryot are calculated to spread the spores as widely as possible, and his method of planting, and more especially of raising a second crop where the disease is prevalent, are almost certain to ensure its recrudescence in an aggravated form.

5. *Measures which should be adopted.*—All land which has been under sugar-cane this year should be sown with paddy, all cane roots which have been left in the ground, wherever there has been any disease, being taken up and burnt.

All the crushed cane and old leaves, and other litter, should be burnt at once, and none stacked for future use. This can easily be done now while the boiling is going on. The ash will be quite harmless, and a most valuable manure.

The best plan to adopt where new gardens are being planted would be to secure "tops" from a perfectly healthy area, but this will not, I think, be feasible this year. The "tops" now at the gardens will have to be used, but they should be carefully examined by cutting across at each end, and any showing red spots in the flesh scrupulously rejected and burnt.

Next year it will be necessary to consider the feasibility of importing seed or taking other measures, but it is now too late to do so this year.

(Signed) A. G. BOURNE.

APPENDIX J.

Destruction of prickly-pear with the aid of the cochineal insect or other parasite.—With reference to G.O., Mis. No. 3767, Revenue, dated 21st September, 1896, I have the honour to submit some remarks upon the practicability of destroying prickly-pear by means of the cochineal insect or other parasites.

Experiments.—As soon as I had undertaken to investigate this matter, I selected a clump of the ordinary yellow-flowered prickly-pear (*Opuntia Dillenii*) growing in the museum grounds, and also procured from the Agri-horticultural Society's gardens plants of the red-flowered species (*O. cochinellifera*) and of three other species (*O. deumana*, *O. monacantha*, and *O. spinosissima*).

I then examined the insects sent to the Superintendent of the Government Museum with the Proceedings of the Board of Revenue, Mis. No. 3844, dated 4th August 1896, and satisfied myself that these were cochineal insects of the so-called "wild" variety (*Coccus cacti*, var. *Grana sylvestris*). I procured a fresh supply of these from Ganjám, and, thanks to my instructions with regard to the packing having been most carefully carried out, and to the fact that it happened to be the most suitable time for the transfer, they reached me alive, and I was able to experiment with them. The time for the transfer was the most suitable, because the young insects were just ready to be hatched, and it is only just after hatching that they will migrate from one leaf to another, and so from one plant to another; they very soon fix themselves, and the females at any rate never move again. I might have had supplies month after month without securing this exact stage.

By carefully attaching portions of the leaves bearing pregnant mothers to my own plants, I got the young to migrate, and many fixed themselves on all my species of cactus.

The specimens sent were all attached to the red-flowered cactus, although some leaves of the yellow-flowered species were also packed in the basket.

The insects which attached themselves to my clump of yellow-flowered cactus exposed to the sun died within a week, and the rain removed all traces of them. Those on the same species which I had growing in a pot and shaded from the full sun, lived considerably longer, but the only ones which lived for any length of time—four months—were those on the red-flowered species (*O. cochinellifera*). They all ultimately died and disappeared, and, although I still watch the

plants, there is no trace of their re appearance. Nor does our knowledge of the life history lead me to expect that there ever will be. I failed therefore to rear the cochineal insects in Madras, but had this been my object, knowing that it has been done before, I should have tried again, taking even greater precautions to protect the young insects. The present object is, however, to destroy the prickly-pear, and it is obvious that, if tried on a large scale, the experiment could not be accompanied by any special precautions for the protection of the insects.

2. *Historical resumé.*—The historical evidence weighs entirely against the practicability of destroying prickly-pear by the cochineal insect. The literature of the subject is very voluminous, and I propose to give here a very brief resumé only.

There seems to be no doubt but that the cochineal insects and the cactuses are all introductions, and the net result has been that the yellow-flowered cactus has thoroughly naturalised itself, while the cochineal insect has just managed to struggle on here and there.

There is evidence that cochineal insects were introduced five times between 1795 and 1883, with a view to the establishment of the cochineal industry in the country. In 1807 Government offered a reward of £2,000 for its successful introduction. It never became thoroughly established. It was, however, possible that, although a fine variety of the insect best for industrial purposes would not flourish, a wilder variety might become more or less naturalised. This has occurred to a small extent, and the idea of utilising this to destroy prickly-pear has been from time to time put forward.

From 1862 to 1868 repeated experiments appear to have been made on a large scale at Raichur, Atur, Palmanér, Madras, Bellary, Secunderabad, Pallavaram, and other places, in some cases with a certain measure of success. This partial success is in itself, I consider, a strong argument against the utility of repeating the experiments. They obviously ultimately failed, as the prickly-pear has not been eradicated in those localities, and were evidently after a time abandoned. It is, on the other hand, clear that, during the experiments, the insects were widely distributed, and the reports of success in some places show that it took a thorough hold only to die out in time, while the prickly-pear must soon have sprung up again.

3. *Remarks on other parasites.*—I have only up to now been able to find one other parasite attacking prickly-pear; this is a mycelial growth which is reported to have caused great damage to a prickly-pear hedge at a salt factory in the Nellore district. I secured specimens, and found the disease to be a mycelial growth which, by gradually indurating the epidermis and blocking the stomata, caused the whole substance of the leaf to rot. I preserved the specimens and watched their gradual decay, and sometime after this was complete and the leaves had dried up, they began to sprout and put forth healthy young leaves. This is an instance of the extraordinary vitality of the plant. I endeavoured, but unsuccessfully, to infect a clump of prickly-pear in the museum grounds with this disease, which leads me to think that unfavourable conditions in the soil or climate must have favoured its spread on the spot.

4. *Conclusion.*—I shall continue to observe and experiment in regard to this matter as opportunity offers. I am hoping to visit Ganjám on a botanical tour in December-January, and shall then examine the Coccus on the spot where alone it appears to have persisted in any quantity, but my present opinion is that it is impracticable to destroy prickly-pear in the manner suggested. Even if it appeared practicable, I should doubt the advisability of the attempt. The Coccus belongs to an extremely obnoxious group of insects—the plant bugs—and, supposing a wild variety were to spread all over the country and to have eaten up all the prickly-pear, I think it is possible—I cannot say probable—that it or some species, which might have spread with it, would turn to some other plant for food, and become an infinitely greater pest than the prickly-pear. This argument applies with great force to a mycelial growth or other parasite, which might prove less selective with regard to its food than the cochineal insect has.

(Signed) A. G. BOURNE.

ORDER—No. 555, Educational, dated 1st September 1898.

The report of the Superintendent on the administration of the Museum and the Connemara Public Library for the year 1897–98 is full and clear and calls for very few remarks. During the absence of Mr. Thurston on leave, the work of the museum was ably carried on by Dr. Bourne.

2. The number of visitors to the museum was 527,343, of whom 262,023 visited the natural history and archaeological section and 265,320 the art, industrial and ethnological section. Of the total number of visitors, nearly 45 per cent. were of the female sex, while about 9 per cent. visited the museum on Sundays.

3. Further progress was made in the anthropological survey of the tribes of South India and, with the aid of the anthropometric apparatus obtained from the Cambridge Scientific Instrument Company, Mr. Thurston should be able to collect much valuable and interesting information on the subject.

4. It is noticed with satisfaction that the collections in the several sections of the museum were materially added to during the year.

5. The Connemara Public Library was visited by 7,281 persons for purposes of reading, and they consulted 11,356 volumes during the ten and-a-half months the library was open to the public.

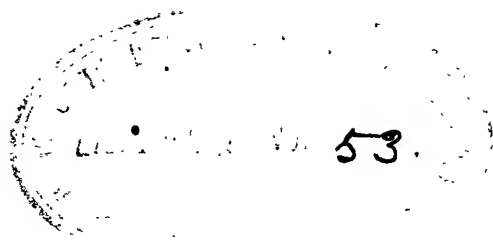
6. The total expenditure on the maintenance of the Museum and the Connemara Public Library during the year was Rs. 29,481, which closely approximates to the revised estimates (Rs. 29,700).

7. The thanks of Government are due to the ladies and gentlemen and the institutions named in the report for their gifts of articles of interest and books to the Museum and the Connemara Public Library.

8. The number of copies of the report asked for by Mr. Thurston will be struck off and forwarded to him for distribution to other museums, &c.

(True Extract.)

H. TREMENHEERE,
Secretary to Government.



3 JULY 1903

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

From E. THURSTON, Esq., Superintendent, Government Museum, Madras, to the Secretary to Government, Educational Department, dated Pantheon Road, Egmore, Madras, 7th July 1903, No. 27-B.

I have the honour to forward, for submission to His Excellency the Governor in Council, my report on the working of the Government Museum and Connemara Public Library during 1902–1903, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT
MUSEUM FOR THE YEAR 1902–1903.

1. VISITORS.—The total numbers of visitors to the museum old and new buildings were 375,725 and 393,419 against 410,436 and 398,822 in 1901–1902.

The largest number of visitors on a single day was 62,154 to the old and 64,173 to the new building at the feast of Pongal. The numbers of visitors on Sundays were 75,334 to the old and 76,862 to the new building. The number of gosha female visitors, on the monthly Saturdays set apart for them, was 7,435.

The museum was visited during the year by Their Highnesses the Gaeckwar and Maharani of Baroda and the Nāwab Bégam Sāhibā.

2. THEATRE.—The two broad flights of steps, referred to in my last report, were constructed, and have proved to be a very great convenience on the occasion of entertainments.

The theatre was used on eleven occasions as follows :—

Amateur Dramatic Society	..	..	..	..	..	..	6
Madras Collegiate School	..	..	..	..	..	..	2
Madras Musical Association	..	..	..	..	..	..	3

3. BUILDINGS AND ESTABLISHMENT.—The entire re-roofing of the library and theatre, both of which leaked very badly, was in progress at the close of the year. The Government expressed its willingness to grant, at the request of the Victoria Technical Institute Council, a site in the museum grounds for the Victoria Memorial. An exhibition hall of indigenous industrial arts, such as is under contemplation, will be a most fitting companion to the existing art section of the museum, and it will be situated in a public place, which is largely resorted to by Natives of all classes, and also by “cold weather” visitors to the city.

The herbarium-keeper, Mr. K. Rangachari, was appointed to officiate as lecturer on botany at the Presidency College during the absence of Dr. Bourne, in addition to his own duties. The artist retired on pension owing to failing health.

For some time past I have been disturbed by the occurrence of thefts—a sword, silver filigree ware, and padlocks—in the museum building. On the penultimate day of the year a Muhammadan “visitor” to the old building was neatly caught by the personal assistant in the act of taking out of the building a series of pieces of mica, which had, he said, been given to him by one of the gallery attendants (for the adornment of a tiger’s tail in connection with the Moharrum). The Muhammadan was sentenced to two weeks’ rigorous imprisonment, and the gallery attendant discharged with the remark that his conduct was very suspicious.

4. CONVERSAZIONE.—A scientific conversazione was, on the initiative of Mr. J. A. Jones, held in the Connemara Library and anthropological laboratory, and opened by His Excellency the Governor. It proved, both popularly and financially, a conspicuous success, and the public owe a debt of gratitude to the numerous members of the medical, educational, public works, telegraph and light-house departments, and others who devoted themselves to the preparation and explanation of the exhibits in their respective charges. Among the most popular of these exhibits were X-rays, wireless telegraphy, filarial mosquitoes, physical tests and pseudoptics.

5. DELHI EXHIBITION.—I was deputed to officiate as one of the judges at the Art Exhibition. The opportunity was taken to make sundry purchases of South Indian art wares, which included carved doors from Bellary and Travancore, brass and zinc ware from Kurumballur, Trichinopoly district; green pottery from Karigeri, North Arcot; carved cocoanuts and coco-de-mer from Travancore and the Cannanore jail; old ivory playing cards from Travancore; an ivory veneered box from Vizagapatam, and a magnificent sandalwood casket from Mysore with hunting scenes, for which a gold medal was awarded. A loan collection of arms from the Tanjore armoury, palempores, metal ware, sandal carving, and lacquer ware was sent to the exhibition.

6. ETHNOLOGY.—Bulletin, Volume IV, No. 3, dealing with marriage customs in Southern India; deformity and mutilation; Urális, Sholagas and Irulas; fire-walking in Ganjám; and corporal punishment in vernacular schools, was issued. A further Bulletin, dealing exhaustively with the Lingáyats of the Madras and Bombay Presidencies, was in proof at the close of the year.

My work in connection with the ethnographic survey was materially helped by notes on tribal manners and customs received from many correspondents, both European and Native, whose assistance I gratefully acknowledge.

At head-quarters the physical measurements of the local Kannádiyans (Lingáyat curd sellers) and Chakkiliyans were recorded. The extent to which the Chakkiliyan males were tattooed was very marked. Two tours were made in the course of the year. During the first of these the physical measurements of the jungle Urális and Sholagas of the Coimbatore district were examined by myself, and their visual acuity, colour-vision, etc., by Dr. W. H. R. Rivers of Cambridge. It took many months before confidence was restored among these primitive folk, who, as a report records, “could not understand why the measurements of the different organs of their bodies were taken; perhaps to reduce or increase the size of their bodies, to suit the different works which they were expected to do near London.” They believed, too, that the variously coloured wools, given to them for selection, were for tying them captive with. I accompanied Dr. Rivers to Ootacamund, there to introduce him to the Todas, a study of whom was the immediate object of his visit to Southern India. A prolonged halt was subsequently made at Coimbatore, where the Kaikólans, Oddes (Wudders), Okkiliyans (Vakkaligas), Toreyans, Sédans, Pallans, and Idaiyans were investigated. The Oddes unfortunately all have the title Boyan added to their names, and a fatal rumour was spread among them that the object of my visit was to transport the strongest among them to South Africa, to replace the Boers who had been killed in the war. My evil eye was cast on them, and they refused to fire a new kiln of bricks for house construction till my departure from their midst. The approach of the cranium towards the brachycephalic type, which I have previously noted as occurring among the Canarese, was again brought out at Coimbatore in the Canarese classes which have emigrated to the Tamil country from their original home.

In the enquiries concerning manners and customs, a novel and eminently effective method of arriving at the truth concerning tribal ceremonials was resorted to, marriage and death ceremonies being acted in the form of theatricals in which each performer at the real ceremony was represented by a member of the class concerned. In this way the interest was thoroughly sustained, and the fatigue, which, soon supervenes among illiterate people when they are interviewed, was avoided. Moreover, apparently trivial, but really important points of detail were clearly brought out in a manner which is impossible by mere oral examination. I have myself had to play the part of maternal uncle, and, as representing the swámi, to receive the obeisance of the mock bride. The leading rôle of corpse at a funeral was played either by an elderly man, or by a clay votive figure purchased from a local potter. The pupils of the eyes of these figures are not painted in till they are taken to the temple, where púja is done to them, as it is the painting of the eyes which endows them with life. Even the pupils of a series of these idols, which were specially made for me, were not painted at the potter's house, but in the verandah of the rest-house where I was staying.

Among the numerous additions to the ethnological section, the following may be noted:—

A remarkable example of the survival of witchcraft in the form of a human female figure over 5 feet in height, carved out of soft white wood (*Alstonia scholaris*), which was recently washed ashore at Calicut on the Malabar coast. Inscriptions were scrawled all over it in Arabic characters, nails had been freely driven in all over the head, body and limbs, and a large square hole cut out above the umbilical region. By a curious coincidence, the corpse of a man was cast ashore near the figure, which was no doubt made to nail an evil spirit to.

Wooden votive offerings in the form of quaint lizards, parrots, peacocks, human beings, musical horns, pick-axes, daggers, guns and swords, which are dedicated by the Savaras of Vizagapatam to the tribal deity. They would not sell them to the district officer, but parted with them on the understanding that they would be worshipped by the Sirkar.

Silver votive offerings, representing various portions of the human body, from Vaithisvarankoil, the Vaithisvaran temple, Tanjore, Periapalayam temple, Chingleput, and Coimbatore. For comparison with these indigenous *ex votos*, I received from Mr. Balfour, of the Pitt Rivers Museum, Oxford, a series of allied offerings from a Roman Catholic church at Antwerp.

Instruments of torture worn by pilgrims to the shrine at Palni, consisting of a silver mouth lock with a skewer passed through both cheeks so as to traverse the mouth cavity; a silver arrow, with which the protruded tongue is pierced; and a silver plate tied over the mouth.

Miniature silver kávasi, carried by females and young persons going to Palni, and miniature silver crown given by pilgrims as a votive offering to the god.

Block and chain, consisting of a block of heavy wood, shaped like an Indian club, to which is attached a strong iron chain. The free end of the chain is fastened by a padlock to the leg of a truant schoolboy or lazy artisan's apprentice, who has to drag the block about with him. Some years ago a native of Madura, whose young wife was fond of gadding about, punished her by making her drag about a log chained and padlocked round the ankle.

Katar (dagger) carried with a lime stuck on the point by the Okkiliyar's bridegroom during the marriage ceremony.

An ingenious form of dry cupping apparatus used by Dommara medicine men. A small incision is made with a piece of broken glass over the affected part, and the skin damped with water. The distal end of a cow's horn, the tip of which has been removed, plugged with wax, does duty for the cup. A hole is pierced through the wax with an iron needle, and the horn being placed over the incision, the air is withdrawn from it by suction with the mouth, and the hole in the wax stopped up. After the necessary time has elapsed, the wax is again pierced, and the horn removed. In a bad case, as many as three horns may be applied simultaneously.

Leather sandals, 26×14 inches, presented by Mádigas at the Tirupati shrine. The god at the Aligiri dévastanam appears annually to four Mádigas in different directions, north, south, east and west. Rice-flour is spread by them on the floor of a room, which is locked for the night. Next morning the impression of a huge foot is found on the floor, to fit which a shoe has to be made. When ready, it is carried in procession through the streets of the village and conveyed to Tirupati, where it is placed in front of the image of the god, and is said to gradually wear away by the end of the year. Though the makers of the shoes have worked in ignorance of each others' work, the shoes brought from the north and south, and those from the east and west are believed to match and make a pair.

Musical instrument (pot drum—Pulluva kudam), which is used at a ceremony in Malabar called Pámbantullel (snake-jumping). When a family is troubled by the presence of snakes on the premises, a female member of the family sits in front of a snake designed on the floor in rice-flour, burnt paddy husk, turmeric and green leaves. The Pulluvan plays on the drum while a Pulluva woman keeps time with the music by striking a metal vessel. Gradually the seated woman becomes possessed and begins to quiver, while waving her dishevelled locks. Moving backwards and forwards, she rubs away the figure of the snake with a bunch of cocoanut flowers. The ceremony may have to be repeated a very large number of times. The Pulluvan, from whom the drum was purchased, was very reluctant to part with it, lest it should be handled and polluted by the touch of an impure female.

Plaster model of a platyrhine Dravidian by a student of the School of Arts.

Apparatus used by tattooing women at Coimbatore. The powders are kept in the scooped out fruits of the palmyra palm and bael (*Ægle Marmelos*), the needles in a hollow bamboo, and the ink is mixed up in a half cocoanut shell.

Model showing the system of pegging adopted by the Kádirs of the Anaimalai hills for climbing lofty forest trees, which is interesting as corresponding in detail with the method employed by the Dyaks of Borneo; and primitive Kádir rat-trap.

The museum was indebted to Mr. B. Macleod for a collection of palæolithic implements from the Pennar valley, Cuddapah district, and to Mr. Seton-Karr for a few selected specimens of such implements from Pundi near Tiruvallúr, North Arcot. A few interesting fragments of pottery from the cairns at Palamalai, Palni hills, were presented by the Rev. H. Hosten.

To the anthropological laboratory were added a set of Holmgren's wools, a series of pseudoptics (illusions), Lovibond's tintometer, and Cohn's tafeln zur prüfung der sehleistung und sehschärfe.

7. ART AND ARCHÆOLOGY.—The following paintings by Native artists, purchased at the Fine Arts Exhibition, or presented to the Society, were added to the loan collection:—

- A retired sepoy, Ravi Varma (presented).
- Three sketches, M. V. Dhurandhar.
- Sakuntala at the Court of Dashyanta, M. V. Dhurandhar.
- An old trapper, Dastagir Khan.
- Study of a lady, C. Gurunathim Raja.
- Brahman lady, K. R. Gholap.
- Seascape, K. R. Gholap.
- Study of a head, K. R. Gholap.
- A beggar, M. Pithawalla.
- Indian opium-smokers, H. Roy.
- Old mosque, Madras, C. Raja Raja Varma.
- Maratha cooly boy, G. V. Mankar.
- Flowers, G. V. Mankar.
- In a quiet corner, T. A. Gopinatha Rao.

The personal assistant was deputed to visit Tirupati, Kalahasti and other places with a view to acquiring a collection of selected examples of old wood-carving such as was formerly used for architectural purposes, to serve as types of purity of Hindu

design unadulterated by western influence. A small but valuable series of doors, lintels, pillars, plaques, etc., was in this way brought together. From Tirupati were also obtained a series of mythological human figures and animals carved in red sanders (*Pteocarpus santalinus*) or white (*Wrightia tinctoria*) wood, which are sold as votive emblems to pilgrims who visit the sacred hill. The figures are rough in finish but executed in a bold free style, and the industry is in a flourishing condition.

A series of daggers, pistol, sword and katar of the Nawábs of the Carnatic was acquired by purchase. The weapons bear the Hindustani legends Amir-ul-Hind Walajah Nawáb and Sirkar Nawáb Walajah Bahádur, and the date.

A collection of framed photographs illustrating Dravidian architecture was exhibited in a large revolving stand with screens.

A large carved stone figure of Narasimha from Hampi (Vijayanagar) was received from the Archæological Department.

A monograph on the wood-carving industry was in course of preparation at the end of the year, in connection with which an admirable series of photographs illustrating the sandalwood carving of Mysore was received through the kindness of the Mysore darbar.

At the suggestion of the Superintendent, Archæological Survey, it was decided by the Government that the copper-plate grants, which are lodged in many of the district offices of the Presidency, should be transferred to the museum on the understanding that, in the event of a particular copper-plate being required as evidence in a court of law or for other purposes, arrangements can always be made for its temporary withdrawal from the museum. In the course of the year copper-plates were consigned to the museum by the Collectors of the Bellary, North Arcot, Salem, Trichinopoly, Tanjore, Madura and Tinnevely districts. Three copper grants were also received from the District Court of Chingleput and recognised by Dr. E. Hultzsch, Government Epigraphist, as being probably forgeries, the donor claiming that his chariot bore the banner of a hawk (sálva), which connects him with the Sálava chiefs.

8. NUMISMATICS.—A series of coins, required to fill up many existing gaps in the Indo-Danish collection, was acquired by purchase. Coins of the Vijayanagar dynasty were received from the Collector of the Bellary district and Bombay branch of the Royal Asiatic Society. A number of rupees struck in the name of the Emperor Sháh 'Álam, of the Benares mint and various dates, were presented by the North-Western Provinces Government. Of a small collection of copper Moghul coins, dug up at Adóni, in the Bellary district, some were identified by Dr. Bloch as being issues of Aurangzib, of the Hyderabad mint, A.H. 1103, and one as of the same Emperor and Surat mint (regnal year 15).

A collection of bronze and silver Indian war medals, which includes the silver Seringapatam medal, 1799, was presented by the Military Department of the Government of India.

9. ECONOMIC AND BOTANICAL.—The rearrangement of the economic section was systematically continued during the year. It is proposed to bring together therein all the indigenous raw economic products and some of the more important imported products which are widely used in Southern India. There will be two main sections, one comprising an index series containing the products arranged in alphabetical sequence, the other consisting of the products grouped together according to their uses. At present a portion of the index series and the collections of medicinal products, fibres, dyes and tans, gums and resins, condiments and spices, narcotics and cereals have been arranged. To render the whole series more attractive and useful, it is proposed to attach to the show-cases framed herbarium sheets, paintings, and photographs illustrating the more important products. It is further proposed to exhibit a series of manufactured articles which are used, *e.g.*, for domestic purposes, toddy-tapping, spinning cotton and coir, etc. Specimens of products are collected both locally in Madras and in the course of my wanderings, and many valuable additions have been received through the Forest department.

A further series is being organised to illustrate, as exhaustively as possible, the timber resources of the Madras Presidency. For this purpose a very large number of timber sections have, by arrangement with the Board of Revenue, been

received from Forest officers in all parts of the Presidency, whose assistance and co-operation I very gratefully acknowledge. The sections are in the form of logs, with the bark entire, and will be exhibited so as to show the characters of the bark and the sectional appearance of the wood (vertical, transverse and oblique). A very interesting series of teak (*Tectona grandis*) sections from the plantation at Nilambūr, Malabar, was presented by Mr. H. A. Gass. The series consists of twenty-two logs, illustrating the growth of eleven trees, of which the oldest was planted in 1842 and the youngest in 1897. Of these, the former measures 7' 2" in circumference and 2' 4" in diameter, and represents the growth of teak in Southern India, under favourable conditions, in half a century. To Mr. Gass I was still further indebted for an entire sandal (*Santalum album*) tree, with its branches complete, which is said to have been the largest example of this species growing in a wild state in the forests of Coimbatore. In the case of the more valuable timbers, a series of panels will be prepared and exhibited, so as to enable those interested in the timber trade to judge of their characters and possibilities. A further series, consisting of micro-photographs illustrating the minute structure of various timbers, is in course of preparation.

Seven water-colour paintings of botanical studies by Mrs. Bishop were added to the botanical gallery. A complete set of herbarium sheets, illustrating the flora of Madras and its vicinity, as well as specimens collected on tour in the Coimbatore district, have been added to the herbarium, and set apart for study by students and others. A detailed list of the economic products, and phanerogamic plants growing in and around Madras, with full descriptions, is in course of preparation.

10. MINERAL GALLERY.—Among the additions may be noted—

A sample of the liquid mercury, discovered at Sheitan kunnu (devil's hill), Edakád, Malabar, during the construction of the new railway.

A series of polished building-stones, including the beautiful porphyritic granites, from Chamundi, Seringapatam, and other localities in the Mysore province, which are being used in the construction of the Maharaja's new palace at Mysore.

A series of clays and rock from borings of a well near Pondicherry.

Felspar with mica, from the Hope quarry, Marupur, Nellore district.

Calcite from old workings near Yercaud, Shevaroy hills; and also from the calcite beds of the Sivagiri estate, Tinnevely.

Specimen of a calcareous bed in which fossil marine mollusca (especially *Turritella*) abound, above the marine formation of sandstone on a hill near Punjid, Gódvári district.

Pseudomorph of pyrites after some woody material, probably deposited round a hollow stick with small twigs or grass inside it, from Quilon, Travancore.

Samples of laterite were sent, for the purpose of quantitative analysis, to Dr. H. Warth, who is investigating the possibilities of laterite as a source of aluminium.

11. NATURAL HISTORY.—A very fine "bison" (Gaur. *Bos gaurus*) skull, which was picked up by a jungle-man near the Periyár, was acquired by purchase. The measurements (Asian, May 3, 1902) are—

Across sweep: well over	..	..	..	..	..	..	45 $\frac{3}{4}$ inches.
Right horn	..	..	..	..	..	..	18 "
Left "	..	..	..	..	..	..	18 $\frac{1}{2}$ "
Between the tips	..	..	..	..	..	..	39 "

Skeletons of the Indian gazelle (*Gozella bennetti*) and the Nilgai or blue bull (*Boselaphus tragocamelus*), were presented by Mr. H. S. Ferguson of the Trivandrum museum.

Photographs of a spotted deer (*Cervus axis*) and cobras (enlargements, life size) were presented by Captain Fayrer, I.M.S., and enlargements of recently slain "bison", bear, and Nilgiri wild-goat (*Hemitragus hylocrius*: ibex) by Mr. H. D. Deane.

From the College of Engineering, Roorkee, some excellent photo-enlargements of elephant keddah operations were received. A large model, illustrating the method of capturing wild elephants in, and extracting them from pits on the Anamalai hills, was made for me under the direction of Mr. H. A. Gass, Conservator of Forests.

A specimen of the beautiful ruddy kingfisher (*Callialecton lilacina*) was secured at Gúduvánhéri in the Chingleput district in the month of November. Its record from Southern India is of interest, as its distribution, as given in the Fauna of British India, is confined to the lower Himalayas, Nepal, Sikkim, Assam, Burma, the Andamans, and the far east. As an addition to the exhibited collection of birds a series of wings of the bright-plumaged birds of Southern India were prepared and mounted on shields. A white-breasted water-hen (*Amaurornis phoenicurus*), with its reed nest and eight eggs, was mounted in a table case.

An interesting specimen, which has been preserved in spirit, was received from Negapatam in the shape of a cobra (*Naja tripudians*) caught in the act of swallowing a Russell's viper (*Vipera russelli*), whose caudal end alone was protruding from the mouth of the cobra.

A magnificent specimen of the crustacean *Palcemon carcinus* Fabr. from Travancore was presented by Mr. H. S. Ferguson.

Spirit specimens, illustrating the cornified papillæ which line the cavity of the œsophagus of the turtle (*Chelone mydas*), and the tongue of the flamingo showing the sharp recurved spines with which it is studæd, were exhibited.

To the small collection of live animals, of which the popularity is great, were added during the year:—

Albino variety of the common striped squirrel (*Sciurus palmarum*) from the vicinity of the Lunatic Asylum, Calicut, where several other specimens of this variety have been caught; and melanotic and light brown varieties of the same animal from the vicinity of Madras.

Large Indian squirrel (*Sciurus indicus*).

Bronze-winged doves (*Chalcophaps indica*), large Andaman paroquets (*Palæornis magnirostris*), and blue-winged paroquets (*Palæornis columboides*).

Spotted-billed ducks (*Anas pæcilorhyncha*).

New houses were erected in the grounds, on either side of the main entrance, for doves, sand-grouse, and pigeons illustrating variation under domestication.

12. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 14,829 against 13,819 in 1901-1902:—

Largest number of readers in a day	..	..	..	..	..	187
Smallest	..	in	..	..	..	9
Largest	..	on Sunday	..	..	..	137
Smallest	..	on	..	..	..	29

The total number of volumes given out to readers was 18,717 against 17,382 in 1901-1902.

The number of standard works added to the library was 393, of which 316 were acquired by purchase and 77 presented.

As a general indication of the class of literature resorted to by readers, I append a list of books issued during the last two years under each subject catalogue head:—

	1901-1902.	1902-1903.
Anatomy; biology; natural history; zoology	.. .. 895	856
Anthropology; folklore	.. .. 525	493
Archæology; architecture	.. .. 359	487
Arts; industries	.. .. 232	209
Atlases; maps	.. .. 84	57
Botany; arboriculture; horticulture	.. .. 224	78
Belles lettres	.. .. 1,188	1,555
Chemistry; agriculture	.. .. 251	183
Classics	.. .. 317	216
Dictionaries; encyclopædias; gazetteers	.. .. 3,308	4,345
Economic products	.. .. 49	81
Education; ethics; logic; metaphysics; philosophy;		
political economy	.. .. 1,495	1,956
Exhibitions	.. .. 72	73
Forestry; timbers	.. .. 31	12
Geography; physical geography; physiography	.. .. 68	59

	1901-1902.	1902-1903.
Geology ; palæontology	53	73
History	2,415	2,306
Jurisprudence	373	758
Medicine ; surgery ; pathology	367	428
Mineralogy ; metallurgy ; petrology	37	55
Natural philosophy	418	388
Numismatics ; medals	128	119
Philology ; epigraphy	262	384
Photographs	36	86
Physiology	155	323
Public health	278	208
Religion	704	580
Sports and games	292	212
Travels ; voyages	428	561
<i>Fort St. George Gazette</i> (other than current issues)	688	933
Vernacular languages	104	96

Manuscript slips for a new edition of the library catalogue were finished to letter Z (authors' names), and the slips of a number of the subject indexes were completed.

Special facilities for ready access to books were given to the officers engaged in the preparation of the new Gazetteer.

The Government approved of a proposal of the council of the Victoria Technical Institute to house the books of the institute in the Connemara Library. The library of technical books and periodicals, acquired out of a donation of Rs. 20,000 given specially for the purpose by the late Rai Bahadur Arcot Dhanakoti Mudaliyar, will be a very valuable addition to the public library, for the reception of which there will be plenty of space available when the library of the Literary Society has been removed to its new home. The periodicals were, as received, placed on the library table.

13. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

APPENDIX A.

DONATIONS, 1902-1903.

- Anantapur, District Forest Officer—
Timber specimens of *Ficus bengalensis* and *Acacia arabica*.
Timber and bark of *Hymenodictyon excelsum*.
- Balfour, Mr. H.—
Silver ex-voto emblems from Antwerp, Belgium.
- Barter, Mr. T. R.—
Rhinoceros beetle (*Oryctes rhinoceros*).
- Bellary, Collector—
Coins of the Vijayanagar and Moghul Kings.
Copper plate grants and cadjan books.
- Bower, Mr. E. H. M.—
Snake (*Enhydrina valakadien*).
- Brown, Mr. M.—
Monkey (*Macacus rhesus*) alive.
- Carr, Mr. R. C. C.—
Lingams, Bellary district.
- Chingleput, District Forest Officer—
Timber specimens.
- Creighton, Mr. C. E.—
Cobra in the act of swallowing a Russell's viper.
- Cuddapah, Collector—
Palæolithic implements.
Madras and Calcutta—Arcot rupees and half-rupees of English East India Company.
- Cuddapah, District Forest Officer—
Timber specimens and forest products.
- Ferguson, Mr. H. S.—
Skins of birds (*Schænicola platyura*).
Skeletons of *Gazella bennetti* (Indian gazelle) and *Boselaphus tragocamelus* (nilgai or blue bull).
Crustacean (*Palæmon carcinus* Fabr).
- Foulkes, Mr. R.—
Rock snake (*Python molurus*) alive.
- Franklin, Mr. F. W.—
African mosquito.
- Ganjám, District Forest Officer—
Timber specimens, bark, seeds and leaves.
Forest products.
- Gass, Mr. H. A.—
Kadir rat-trap.
Sandal tree.
- Gray, Mr. C.—
Nest of white-browed fan-tail Fly-catcher (*Rhipidura albifrontata*).
- Grey, Mr. T. W.—
Bones (of camel?) from an old working sunk 450 feet underground at the Hutti mine, Lingsugur, Deccan.
- Gopálan, Mr. A.—
Albino squirrel.
- Government of India—
Indian war medals.
- Haig, Colonel—
Bison mask.
- Hamilton, Mr. A. W.—
Wooden witchcraft figure, Calicut.
- Harrison, Mr. C. B.—
Snake (*Bungarus cæruleus*) alive.
- Hasted, Mr. W. A.—
Civet cat (*Viverricula malaccensis*) alive.
- Hasted, Mr. J. E. H.—
Spotted billed ducks. (*Anas pæcilorhyncha*) alive.

- Hatchell, Mr. D. G.—
Black Ibis (*Inocotis papillosus*).
- Hosten, Rev. H. —
Pottery from cairns, Palamalai, Palni hills.
- Hunter, Mr. R.—
Copper Moghul coins dug up at Adóni.
- Kistna, District Forest Officer—
Timber and bark of *Mimusops hexandra*.
Leaves, flowers and gum of *Woodfordia floribunda*.
- Krishnan, Dewán Bahádur, E. K.—
Large Andaman paroquet (*Palaeornis magnirostris*).
Blue-winged paroquet. (*Palaeornis columboides*).
- Kurnool, District Forest Officer—
Timber specimens, fibre and bark.
- Lynn, Mr. V. G.—
Borings from well at Pondicherry.
- Macleod, Mr. B.—
Palæolithic celts from Cuddapah.
- Madura, Collector—
Copper grants.
- Madura, District Forest Officer—
Timber of *Ixora parviflora*.
Balsamodendron Berryi gum.
- Malabar, District Forest Officer—
Timber of *Cedrela Toona*.
- Manantoddy, Assistant Conservator of Forests—
Bark of *Salix tetrasperma*.
- Menzies, Mr. R. T.—
Shell conglomerate with Turritella shells, from hill near Punjid, Gódvári district.
- Mir Anwarruddin Sahib, Mr.—
Worm (*Bipalium unirrattum*).
- Mounsey, Mr. C. H.—
Khond woman's bracelet.
- Municipal Commission, Madras—
Indian Bear (*Melursus ursinus*).
Cockatoo.
Tapir.
- Nellore, District Forest Officer—
Timber of *Soymida febrifuga* and forest products.
- Nilgiris, District Forest Officer—
Timber, bark, fruits and flowers of *Michelia nilagirica*.
Timber of *Lagerstroemia parviflora*.
- North Arcot, Collector—
Copper grants.
- North Arcot, District Forest Officer—
Timber specimens and forest products.
- North Malabar, District Forest Officer—
Fibre and gum of *Sterculia villosa*.
- Paddison, Mr. G. F.—
Savara votive offerings.
- Pope, Lieutenant-Colonel T. H.—
Tusser moth (*Antheraea mylitta*).
- Rae, Mr. A.—
Stone idol from Vijayanagar.
- Ronaldson and Ronaldson, Messrs.—
Samples of aloe (*Agave*) fibre, Bahaman and Mexican sisal hemp.
- Royal Asiatic Society (Bombay Branch)—
Gold coin of Śtri Pratáp Déva Ráya, king of Vijayanagar found in the Poona district.
Silver coin of the western Saliyahs found in the Ahmedabad district.
Gold coin of Śtri Pratáp Harihara, Vijayanagar dynasty, found in the Ahmednagar district.

- Salem, Collector—
 Copper plate grant in Canarese.
 Five copper plates in Nágari.
 Copper plate in Tamil.
 Timber of *Alstonia scholaris*.
- Salem, District Forest Officer—
 Timber specimens.
- Sargent, Mr. E. H.—
 Felspar from the Hope quarry, Marupur, Nellore district.
- Seton-karr, Mr. H. O.—
 Palolithic celts from Pundi near Tiruvallúr, Chingleput district.
- Sharrock, Rev. J. A.—
 Photograph of branching palmyra palm.
- Southern Circle, Conservator of Forests—
 Models of stem showing Kadir pegs and bamboo for climbing trees, and Kádír rattan ladder for descending cliffs for collecting honey.
- Stokes, Mr. H. G.—
 Ex voto offerings from the Vaithisvarankoil temple.
- Tanjore, Collector.—
 Copper grants.
- Tanjore, District Forest Officer—
 Timber specimens and forest products.
 Bark of *Spondias mangifera*.
- Tinnevely, Collector—
 Copper plate grants.
- Tinnevely, District Forest Officer—
 Timber specimens.
- Tirupati, Deputy Tahsildar—
 Sacred shoes from Tirupati.
- Sottenham, Mr. A.R.L.—
 Musical instrument (Pulluvakudam) from Malabar.
- Trichinopoly, Collector—
 Copper plate grants.
- United Provinces Government—
 Gold mohur of Alamgir.
 Silver Moghul coins (Sháh Jahán, Agra mint).
 Silver Moghul coins.
 Two coins from the Lucknow district.
 Silver coins discovered in the Mainpuri district and Benares district.
- Venkata Row, Mr. P. N.—
 Cobra (*Naja tripudians*).
- Vizagapatam, District Forest Officer—
 Forest products.
- Walker, Mr. J. L.—
 Portrait of Sir Thomas Hislop.

APPENDIX B.

CLASSIFIED list of expenditure of the Government Museum during the year 1902-1903.

	Actuals, 1902-1903.	Revised estimate, 1902-1903.
	RS.	RS.
Salaries—		
Superintendent	9,600	9,600
Exchange compensation allowance	600	600
Local allowance	2,400	2,400
Total ..	12,600	12,600

APPENDIX B—*cont.*Classified list of expenditure of the Government Museum during the year 1902–1903—*cont.*

	Actuals, 1902–1903.	Revised estimate, 1902–1903.
	Rs.	Rs.
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior, second and third taxidermists, artist, writer, assistant writer, fifteen hamāls, six gallery attendants, superintendent's peon, door-keeper, chickledar and two peons—35 persons	6,246	6,341
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller and chokra—14 persons	967	969
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons.	2,636	2,651
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person	48	48
Total Establishment ..	9,897	10,009
Allowance—		
Travelling allowance	2,128	1,200
Supplies and services—		
Cost of specimens purchased on tour	1,096	900
Objects of interest and coins purchased at head-quarters.	755	700
Fittings, furniture, etc., for the collections	2,350	2,400
Cost of books and publications	843	900
Library	1,843	2,000
Lithographic plates	267	500
Ammunitions	15	15
Charges for feeding live animals	235	275
Expenses—		
Reading coins	3	10
Measurement	37	50
Total Supplies and services ..	7,444	7,750
Contingencies—		
Purchase of furniture	34	97
Tour charges	369	285
Landing, shipping and freight charges	68	20
Repairs to furniture	97	100
Cleaning charges	65	95
Postage do.	193	300
Telephone do.	200	200
Telegraph do.	30	20
Rents, rates and taxes	3,843	3,843
Office expenses including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes and match-boxes	606	621
Miscellaneous	48	400
Delhi charges	3,276	..
Total Contingencies ..	8,829	5,981
Grand Total ..	40,898	37,540

ORDER—No. 333, Educational, dated 11th July 1903.

The Governor in Council has perused with great interest Mr. Thurston's report of the institutions under his charge. The management of them continued to be highly efficient, and it appears that valuable researches of the ethnographic class were conducted.

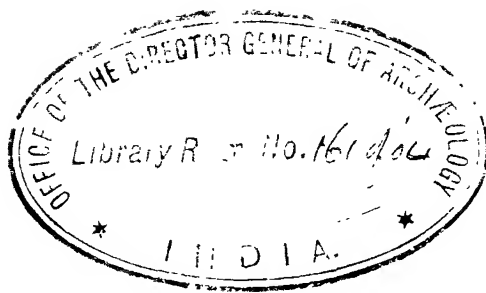
2. The number of visitors to the museum buildings was slightly less than in the previous year; that of readers at the Connemara Public Library showed a further increase.

3. The Government would have been glad to know whether the marine dredging off the littoral of Madras mentioned in the previous report was continued, and if so with what result.

4. The thanks of Government are due to Mrs. Bishop and others who rendered help to the Superintendent or presented donations.

(True Extract.)

A. G. CARDEW,
Ag. Secretary to Government.



GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

From J. R. HENDERSON, Esq., M.B., F.L.S., Officiating Superintendent, Government Museum, Madras, to the Secretary to Government, Educational Department, dated Pantheon Road, Egmore, Madras, 7th July 1904, No. 28-B.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and Connemara Public Library during 1903-1904, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT MUSEUM
FOR THE YEAR 1903-1904.

I had charge of the museum during the last two months of the year only. This report is, therefore, largely compiled from the notes given to me by Mr. Thurston.

2. VISITORS.—The total numbers of visitors to the museum old and new buildings were 413,663 and 457,464 against 375, 725 and 393, 419 in 1902-1903.

The largest number of visitors on a single day was 60,480 to the old and 61,026 to the new building at the feast of Pongal. The numbers of visitors on Sundays were 70,063 to the old and 71,653 to the new building. The number of gosha female visitors, on the monthly Saturdays set apart for them, was 9,237.

The museum was visited during the year by Her Highness the Maharani of Rewa (Maharaja Kumarika of Vizianagram) and by the Thakurain of Madhogarh, also by His Excellency the Governor of Madras accompanied by His Highness the Raja of Cochin, and by His Highness the Maharaja of Mysore.

3. THEATRE.—The theatre was used on ten occasions as follows :—

Amateur Dramatic Society	..	..	..	..	..	..	7
Madras Collegiate School	..	..	..	..	..	..	2
Madras Musical Association	..	..	..	..	..	..	1

4. BUILDINGS AND ESTABLISHMENT.—The construction of the annexe to the pre-historic room was commenced towards the end of the year. The Government having approved of the plans and estimates for the proposed Victoria Memorial building, to be erected by the Victoria Technical Institute Council in the museum grounds, sanctioned a contribution of Rs. 50,000 towards the cost.

Mr. Thurston, the permanent Superintendent, proceeded on leave on 30th January 1904. The herbarium-keeper, Mr. K. Rangachari, was deputed to act as Superintendent of Ethnography in addition to his duties as Lecturer on Botany at the Presidency College. Mr. S. Sundararaman, B.A., was appointed acting herbarium-keeper. The posts of draftsman and third taxidermist were abolished, some of the subordinates were regraded with increase of pay, and the appointment of a watchman to be in special charge of the live animals was sanctioned (*vide* G.O., No. 57, Financial, dated 19th January 1904).

5. MADRAS INDUSTRIAL AND ARTS EXHIBITION.—Mr. Thurston acted as President of the Judging Committee, and the Personal Assistant and the Herbarium-keeper also assisted the Committee in arranging the exhibits. The following articles were purchased at the exhibition :—

A collection of arms (spears, daggers, etc.).

Green glazed pottery vases and other receptacles from Karigeri, North Arcot district.

A magnificent carved ivory tankard made at the Trivandrum School of Arts.

A collection of Bidri ware.

Wax-printed cloths from Kumbakonam.

Woven silk cloth from the Cuddapah district.

Mats from Pattamadai, Tinnevely district.

6. ANTHROPOLOGY.—Mr. Thurston reports as follows :—

Bulletin, Vol. V, No. 1, dealing with the vision of the Urális and Sholagas ; more marriage customs in Southern India ; hook-swinging ; and Pulayans ; was issued. For the article on visual acuity, etc., I was indebted to Dr. W. H. R. Rivers, who examined the Urális and Sholagas when in camp with me at Dimbhun in the Coimbatore district. As human hook-swinging is forbidden, a pseudo-ceremony has been substituted for it, and was performed for my special edification at Channapatna in the Mysore province. To a long beam a wooden figure of Sidi Viranna, carrying in his hands a sword and shield, and dressed up in a gaudy turban and silk-bordered cloth, was secured by means of a rope made of human hair, and tied to a hook in the middle of his back. The beam was then hoisted on high, and Sidi Viranna rotated round and round, accompanied by the Goddess Máriamma, and Holeyá musicians playing weird music with pipe and drum. Sometimes a cradle is tied to the beam, and children are hoisted on it. The Pulayans, who live in the jungles at the base of the Tinnevely mountains, are interesting as an example of the primitive tribes of Southern India, short of stature and dolichocephalic, in some of whom the archaic type of platyrrhine nose persists. Matrimonial complications sometimes occur among them owing to the absence of a girl of suitable age for a young man, and I came across two brothers who had, for this reason, resorted to the adelphous form of polyandry. The Pulayans absolutely refuse to touch leather, and one of them declined to carry my camera-box because he detected that it had a leather strap. Savari (a corruption of Xavier) is a common name among them. There is a temple called Savarimalayam (Xavier of the hills) on the Travancore frontier, whereat the festival takes place at the same time as the festival in honour of St. Xavier among Roman Catholics.

A prolonged tour was made in the Mysore province in connection with the ethnographic survey, with the primary object of continuing my researches into the character of the Canarese cranium (*vide* Museum Bulletin, IV, 2, 1901). The work was carried out under conditions of considerable difficulty, caused by the terror of the natives, who mistook me for a recruiting sergeant bent on seizing them for employment in South Africa or for the Somali war, and fled before my approach from town to town. The little spot, which I am in the habit of marking with Aspinall's paint to indicate the position of the fronto-nasal suture when measuring the nose, was supposed to possess blistering properties, and to turn into a number on the forehead, which would serve as a means of identification. The untimely death of a Korava outside a town where I was halting was attributed to my evil eye. Villages were denuded of all save senile men, women and children. The vendors of food-stuffs in one bazaar finding business slack owing to the flight of their customers, raised their prices, and a missionary complained that the price of butter had gone up. My arrival at one important town was coincident with a temple festival, whereat there were not sufficient men left to drag the temple car in procession. The headman of another town, when he came to take leave of me, apologised for the scrubby appearance of his chin as the local barber had fled. One man, who had volunteered to be tested with the tintometer, was suddenly seized with fear, and, throwing his body-cloth at my feet, ran away and was no more seen. An elderly municipal peon wept bitterly when undergoing the process of measurement. Such are a few examples of the results which attend the progress of the Government anthropologist. Despite the opposition I was, with the assistance of

the Comptroller of the Mysore palace, amildars and others, enabled to record the measurements of nearly a thousand subjects belonging to nineteen different classes, and to secure a considerable addition to our knowledge of the South Indian cranium. A detailed analysis of the results will eventually be published elsewhere, and it will suffice, for the purpose of the present report, to place on record the following comparative data, which show the difference of type of cranium in the Canarese and Marátha area, and in the Southern (Tamil and Malayalam) districts of the Madras Presidency.

CEPHALIC INDEX.

Tamil and Malayalam area.					Canarese and Marátha area.				
Tiyan	..	..	..	72·6	Bestha	..	..	..	77·1
Kádir	..	..	..	72·9	Kuruba	..	..	..	77·3
Tamil Pariah	..	..	..	73·6	Bédar	..	..	..	77·3
Vellála	..	..	..	74·1	Gániga	..	..	..	77·5
Palli	..	..	..	74·2	Mádhva Bráhmaṇ	..	..	..	78
Agamudaiyan	..	..	..	74·2	Agasa	..	..	..	78·5
Tamil Malaiáli	..	..	..	74·3	Padma Sálé	..	..	..	78·7
Pattar Bráhmaṇ	..	..	..	74·5	Panchála	..	..	..	79
Uráli	..	..	..	74·6	Holeya	..	..	..	79·1
Kammálan	..	..	..	75	Rangári	..	..	..	79·8
Mukkuvan	..	..	..	75·1	Hebbar Bráhmaṇ	..	..	..	80·1
Pallan	..	..	..	75·9	Mandya Bráhmaṇ	..	..	..	80·2
Idaiyan	..	..	..	76	Vakkaliga	..	..	..	81·7
Smarta Bráhmaṇ	..	..	..	76·5	Suka Sálé	..	..	..	81·8

Among the additions to the ethnological section, the following may be noted :—

Koracha arrow used for shooting fish in the river near Manantoddy. The principle is the same as in the dart used with a blowpipe in Malabar for shooting fish ; as in the apparatus used for catching sharks off the west coast ; and as in the Greenlanders' spear.

Earth eaten by coolies on an estate in the Wynád. Several deaths of women, with dropsical symptoms, occurred as the result of eating a singularly luscious stratum of clay, which they came across. The habit is contracted in secret, and, once acquired, cannot be abandoned.

Wooden human figurines made at Tirupati. If there be a grown up boy or girl in a family who remains unmarried, the parents celebrate the marriage ceremony between a pair of the dolls, in the belief that the marriage of their children will speedily follow. They dress up the dolls with clothes and ornaments, and go through the details of a real marriage. Some there are who have spent as much money on a doll's marriage as on a marriage in real life.

Large musical horn (kompu). Blown by a Holeya in Mysore villages to announce the approach of the Amildar on village inspections and on other occasions.

Horn knuckle-dusters with sharp points used by Jettis (professional wrestlers and gymnasts) in Mysore.

Hat made of the liber (inner bark) of the sacking-tree (*Antiaris toxicaria*), and worn by the Arayans of Travancore.

Bashingams (chaplets) made from the pith of *Æschynomene aspera*, and worn by bride and bridegroom of the Vakkaliga, Kuruba, Gániga, and other classes, on the forehead.

Whistles, silver and copper, tied round the neck of some Holeyas, Vakkaligas, Besthas, etc. The whistle is tied by means of a chain of sheep's wool by a Bhairági in the name of the god Bhaira at Chunchingiri in Mysore, usually in fulfilment of a vow by the parents. At the ceremony the Bhairági bores a hole in the right ear-lobe of the celebrant, and from the wound two drops of blood fall to the ground. He is then bathed, and the tying ceremony is performed. The man who wears the whistle attains the rank of priest in his caste, and is entitled to receive meals and alms on festive occasions. He blows his whistle, which emits a feeble squeak, before partaking of food and performing his daily worship.

The museum was indebted to Mr. H. W. Seton-Karr for an exceedingly interesting series of neolithic implements from Banda, United Provinces.

Iron-cage gallows from Beluguppa in the Kalyandrug taluk of the Anantapur district. The gallows are believed by natives to have been erected by Sir Thomas Munro, and a stone placed near them, records in Telugu that two jemadars were hung by order of the Foujdari Court in 1837 for killing a man by throwing a noose.

Model of a Chenchu hut, and telescopic spears used by the Chenchus for spearing birds.

Bows and arrows used by the Koyas.

Garment made from the leaves of a sedge (tanda), worn by the Tanda Pulayan females of Travancore. A ceremony, called the tanda marriage, is performed when a girl first dons the costume.

Head-dress, worn by Koyas at their dances, decorated with buffalo horns, cowry shells, peacock feathers, and a mirror.

7. ART.—The following paintings by native artists, purchased at the Fine Arts Exhibition, were added to the loan collection:—

On the banks of the Ganges, by J. P. Gangooly.

A King and Queen of ancient India, by M. V. Dhurandhar.

Two studies, by M. V. Dhurandhar.

The following were the chief additions made to the Art and Industrial section of the museum:—

Model temple car, with flying cherubs and winged horses, carved in red sanders wood (*Pterocarpus santalinus*) at Tirupati.

Mixed-metal bowl, engraved on the outside and inside with texts from the Qurán. Such bowls are taken or sent to Mecca, placed at the head of the tomb of the Prophet, and blessed. They are then much valued articles, and used in cases of sickness for the administration of medicine and nourishment.

Wood-carvings by an old Muhammadan at Udayagiri, Nellore district. "The most interesting point," the Revd. F. W. Stait writes. "in the history of this little industry is that it is all the outcome of personal talent and application, for not only did the man carry on the work and design the articles, but he also made his own tools and instruments as the need unfolded itself."

The monograph on Wood-carving in Southern India, referred to in the last report, which deals largely with the sandal-wood carving of the Gudigars of Mysore, to whom a gold medal was awarded at the Delhi Exhibition, was issued.

8. ARCHÆOLOGY.—By a notification of Government, the Superintendent of the Archæological Survey, and the Government Epigraphist, were brought into more intimate relation with the museum than heretofore by being appointed Honorary Assistant Superintendents.

Pottery, with Ampullaria and portions of Nautilus shells, and ornaments and pierced beads made from the chank (*Turbinella rapa*), were received from a mound near Gudivada, Kistna district.

Two stone pillars, bearing inscriptions, which must have been originally set up in a Jain temple, were received from Dharmapuri in the Salem district. An account of these pillars is given by Dr. E. Hultzsch, Government Epigraphist, in his Annual Report, 1900-1901.

Photo-enlargements of pictures and photographs preserved in the houses of Jains at Hassan, Mysore province, and illustrating the Jain religion were exhibited.

Bead and shell ornaments, and iron articles found during excavation at Manappallam, Tinnevely, by Mr. L. Vibert, were exhibited.

The following stone articles from excavations in the Tinnevely district, were forwarded to the museum by the Archæological Survey (*vide* Annual Report, Archæological Survey, 1902-1903):—

A headless, but finely sculptured stone image of Subramanyaswâmi, and some sculptured slabs, from Kurumbur; a sandal-wood grinding slab from Sugandalê; a stone with Tamil inscription from Adichanallur. From the same source was also received a Jain image from Vijayanagar (Hampi), in the Bellary district.

The following found at Hemavati, near Madakasira in the Anantapur district, were received from the Government Epigraphist:—

A black granite pillar set up in front of the Henjarappa temple; a slab set up in front of the Anjaneya temple at Henjeru (half a mile from Hemavati); a pillar from the field of Hampanna.

Four copper-plate grants were received from the Treasury Deputy Collector of South Arcot for deposit in the museum.

The magnificent collection of bronzes, iron weapons and implements, gold ornaments, pottery, and human bones, excavated under the direction of Mr. A. Rea, Superintendent of the Archæological Survey, at various "prehistoric" or early historic (protohistoric) sites in the Tinnevely district, was consigned to the museum for arrangement. The collection is so extensive that its final arrangement will be impossible until the annexe to the existing prehistoric gallery, now under construction, has been built. Among the human bones, were several skulls in a sufficient state of completeness to permit of the more important cranial measurements being determined hereafter. For the moment it must suffice to state that they are all conspicuously dolichocephalic. It has been decided (G.O., No. 814, Public, dated 22nd August 1902), that duplicates will eventually be made available for museums in other parts of India, but that no distribution shall be made until a thoroughly representative collection has been set apart for the Madras museum.

9. NUMISMATICS.—The following gold Roman coins (*solidi*) were acquired from a find of about fifty, by a rayat, in a pot three feet below the surface, at Puthenkavoo, Travancore.

Theodosius—

Obv.—Head of Emperor diademed. D. N. THEODOSIVS P. F. AVG.

Rev.—Two figures, each holding a scroll and cross. SALVS REIPUBLICÆ. In exergue CONOB.

Leo—

Obv.—Head of Emperor diademed. D. N. LEO PERPET. AVG.

Rev.—Victory walking *l.* holding cross. Star in field. VICTORIA AVGGÆ. In exergue CONOB.

Zeno—

Obv.—Head of emperor diademed. D. N. ZENO PERP. AVG.

Rev.—Victory walking *l.* holding cross. Star in field. VICTORIA AVGGH. In exergue CONOB.

Anastasius—

Obv.—Head of emperor diademed. D. N. ANASTASIVS P. P. AVG.

Rev.—Victory walking *l.* holding cross. Star in field. VICTORIA AVGGÆ. In exergue CONOB.

Marcianus—

Obv.—Head of emperor diademed. D. N. MARCIANVS P. F. AVG.

Rev.—Victory walking *l.* holding cross. Star in field. VICTORIA AVGGI. In exergue CONOB.

All the coins of Marcianus are said (Stevenson, Dict. Roman Coins) to be of the highest rarity.

Justinus—

Obv.—Head of emperor diademed. D. N. JUSTINVS P. P. AVG.

Rev.—Victory walking l. holding cross. Star in field. VICTORIA AVGGG. In exergue CONOB.

The above coins of the later emperors constitute a very valuable addition to the museum collection of Roman coins found in Southern India, which previously commencing with Augustus, terminated with Caracalla.

The following coins were also received during the year :—

Benáres rupees of the English East India Company, of thick Moghul type, with dates from 1213 to 1233, and fixed regnal year 26. Probably, as Dr. S. Lane-Poole points out, the failure to alter the regnal year is an indication of European negligence.

Single and double puthans of Cochin, struck in 1790—1791, 1856—1858, and 1897—1898.

Hook-money or toowela (= long bit) from Hassa in East Arabia, which is of interest for comparison with the Ceylon larin.

A series of Oudh rupees with dates from 1251 to 1271.

A small find of Moghul rupees was received from the Vizagapatam district, consisting of the following :—

Akbar ; Ahmadabad mint, year 995.

Akbar ; year 993.

Sháh Jahân ; Surat mint, year 1053.

Aurangzib ; Tatta mint, regnal year 9.

„ Golkonda mint, regnal year 24.

„ Zafarabad mint, regnal year 24.

A Cochin chakram board of “rose wood,” capable of counting on one side 500 double puthans, and on the other 1,000 single puthans, was presented to the museum by the Hon’ble Mr. H. Bradley.

The collections of coins of the Sétupatis and the Vijayanagar dynasty, and the fine collection of Ráma Tankas, were arranged in the coin cabinets.

10. ECONOMIC AND BOTANICAL.—The section in which the economic products are grouped according to their uses has been considerably enlarged during the year by additions to the already existing collections. Several groups of products which had not been previously exhibited have been added to this section, notably a collection of about sixty South Indian vegetable oils, with the seeds, etc., from which they are derived, exhibited alongside.

The series intended to illustrate the timber resources of the Presidency is in process of arrangement, and a number of wood sections have already been prepared for exhibition ; the timber material still available, is receiving the special attention of the herbarium-keeper.

At the Industrial and Arts Exhibition, a series of samples of chrome-tanned leather, and an extensive collection of fibres and rubbers were acquired.

The museum was indebted to the Cochin Darbar for two splendid transverse sections of teak (*Tectona grandis*) and “rosewood” (*Dalbergia latifolia*) from the Cochin forests. To the Mysore Darbar the Museum is also indebted for a series of timber blocks illustrating the various kinds of wood available in the Mysore province.

11. MINERAL GALLERY.—Among the additions may be noted—

Green and blue fibrous serpentine (picrolite) from the magnesite veins, Chalk hills, Salem.

Micaceous schist from Melkote in the Mysore province, decomposed into a fine white clay. Said to have been discovered by Emberumánár or Rámanúja, and used by Vaishnava Bráhmans for making sectarian marks on the forehead.

Transparent calcite, exhibiting double refraction, from Hyderabad.

Cubical crystals of iron pyrites scattered through rock, used for building purposes at Nandyal, Kurnool district.

Stalagmites from the Periyár dam, Travancore. Formed by water percolating through the dam, and dissolving the lime from the mortar which is a constituent of the concrete.

Graphite (plumbago) from the Polavaram estate, Gó dávari district.

Specimen from the bed of a hill stream running past Golapudi near Polavaram, Gó dávari district, concerning which Mr. T. H. Holland, Director, Geological Survey of India, writes as follows: "It is, as far as our own experience goes, quite unique. The main mass of the rock is a granular mixture of augite, plagioclase and hornblende. The black film on one face with large, lath-shaped white crystals, appears to be a contemporaneous vein, that is, a fissure filled in before the complete cooling of the rock by the residual magma, and of about the same bulk composition as the rock itself. The black mineral of the film is the hornblende of the main rock, with which it is in continuity, whilst the white crystals are mainly of scapolite with a shell of plagioclase; and, as scapolite chemically differs from plagioclase mainly in the introduction of chlorine, I presume the alteration is due to the action of chlorine vapours passing along the fissure during the cooling of the rock mass."

12. NATURAL HISTORY.—To the British Museum, Natural History Department, the museum is indebted for the return of a named collection of Coleoptera, Hemiptera and Orthoptera, which was made some years ago at Bangalore. A similar collection from the City of Madras is in course of preparation.

Three photographic enlargements of Russell's viper (*Vipera Russellii*), one of which shows the fangs of the snake, were prepared from negatives by Captain F. D. S. Fayrer, I.M.S. They are exhibited beside a living specimen of the viper.

A specimen of the recently described *Mus famulus*, a mouse hitherto only found in the neighbourhood of Coonoor, Nilgiris, was presented by Mr. C. Gray, who originally added the species to the Indian fauna.

The following were the chief additions to the bird collection:—

Crested hawk-eagle (*Spizaetus cirrhatus*).

Broad-tailed grass-warbler (*Shoenicola platyura*).

Albino variety of the grey partridge (*Francolinus pondicerianus*).

A specimen of the rare yellow-throated bulbul (*Pycnonotus xantholaemus*), which is apparently confined to the Eastern Ghâts in the neighbourhood of Nellore, was presented by Mr. D. G. Hatchell.

Bengal red-whiskered bulbul (*Otocompsa emeria*) from the local market.

The skeleton of a spotted-billed pelican (*Pelecanus philippensis*) was added to the collection of bird skeletons.

A collection of jumping spiders, obtained in the neighbourhood of Madras, was forwarded to Mr. George W. Peckham, Milwaukee.

The collection of live animals continued to be attractive, and the following were added during the year:—

Albino rats (*Mus rattus*).

Orange-breasted green pigeons (*Osmotreron bicincta*).

A young marine turtle (*Chelone mydas*).

A snake (*Hydrophobus nympha*).

13. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 16,055 against 14,829 in 1902-1903:—

Largest number of readers in a day	..	..	..	..	..	232
Smallest " in "	..	..	..	..	..	10
Largest " on Sunday	..	..	..	..	..	217
Smallest " on "	..	..	..	..	..	29

The total number of volumes given out to readers was 19,635 against 18,717 in 1902-1903.

The number of standard works added to the library was 404, of which 304 were acquired by purchase and 100 presented.

As a general indication of the class of literature resorted to by readers, I append a list of books issued during the last two years under each subject catalogue head—

	1902-1903.	1903-1904.
Anatomy ; biology ; natural history ; zoology	856	1,315
Anthropology ; folklore	493	694
Archæology ; architecture	487	384
Arts ; industries	209	574
Atlases ; maps	57	76
Belles lettres	1,555	1,676
Botany ; arboriculture ; horticulture	78	291
Chemistry ; agriculture	183	348
Classics	216	311
Dictionaries ; encyclopædias ; gazetteers	4,345	4,247
Economic products	81	82
Education ; ethics ; logic ; metaphysics ; philosophy ; political economy	1,956	2,599
Exhibitions	73	119
Forestry ; timbers	12	48
Geography ; physical geography ; physiography	59	80
Geology ; palæontology	73	146
History	2,306	2,050
Jurisprudence	758	671
Medicine ; surgery ; pathology	428	631
Microscopy .. ..	..	58
Mineralogy ; metallurgy ; petrology	55	90
Natural philosophy	388	515
Numismatics ; medals	119	118
Philology ; epigraphy	384	216
Photographs	86	50
Physiology	323	451
Public health	208	307
Religion	580	810
Sports and games	212	233
Travels ; voyages	561	385
<i>Fort St. George Gazette</i> (other than current issues)	938	974
Vernacular languages	96	137

The manuscript slips of the subject indexes for a new edition of the library catalogue were completed.

A proposal was received by Government from the University of Madras, that a legacy bequeathed to it by Mr. William Griffith should be utilised by the establishment and organisation of a library in connection with the University, and that it should be associated with the management of the Connemara Library, in view to making this a university as well as a public library. The Government agreed with the proposal, provided that the books, while remaining the property of the University, are available to the general readers of the Connemara Library. No definite action has, however, been taken, pending the passing of the Universities' Bill.

14. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

APPENDIX A.

DONATIONS, 1903-1904.

- Anantapur, Collector—
Cage gallows.
- Anantapur, District Forest Officer—
Leaves of *Hymenodictyon excelsum*.
„ *Ficus retusa*.
- Anderson, Mr. M.—
Indian scaly ant-eater (*Manis pentadactyla*).
- Barber, Mr. C.—
Malabar spiny mouse (*Platacanthomys lasiurus*).
- Barlow Pool, Mr. B. H.—
Photograph of cage gallows, Anantapur district.
- Bellary, District Forest Officer—
Timber of *Poinciana elata*.
- Bradley, Hon'ble Mr. H.—
Cochin chakram board.
- Central Circle, Conservator of Forests —
Fibre and bark of *Hardwickia binata*.
- Chatterton, Mr. A.—
Stalagmites from Periyár dam, Travancore.
- Chingleput, District Forest Officer—
Timber specimens.
Leaves of *Terminalia chebula*.
Bark of *Soymida febrifuga*.
Leaves and fruit of *Terminalia belerica*.
- Chingleput, Sub-Collector—
Nandi from Sendamangalam, Conjeeveram taluk.
- Cochin, Dewan—
Transverse section of teak timber (*Tectona grandis*) 20 feet 2 inches in girth.
Transverse section of rosewood (*Dalbergia latifolia*) 20 feet in girth.
- Cochin, Dewan's Secretary—
Two single and two double puthans each of the coinages of 1790-91, 1856-58, and 1897-98.
- Cuddapah, District Forest Officer—
Timber of *Areca catechu*.
Timber of *Pterocarpus santalinus*.
Timber of *Bassia latifolia*.
- Ethiraja Mudaliyar, Mr. P.—
Live crocodile.
- Fawcett, Mr. F.—
Koracha arrow.
- French Rocks, Mysore, Deputy Amildar—
Clay from Melkote.
- Ganjám, District Forest Officer—
Timber specimens.
Roots of *Gardenia turgida*.
- Ghansham Singh, Mr. T.—
Dead pigeon.
- Gillespie, Mr. J. T.—
Young toddy cats (*Paradoxurus niger*).
- Gódávári, District Forest Officer—
Timber, bark and leaves of *Diospyros melanoxylon*.
Timber, fibre and leaves of *Cordia myxa*.
Bark, leaves and fruit of *Diospyros embryopteris*.
• Timber of *Diospyros chloroxylon*.
- Government Epigraphist—
Stone pillar from the Mallikarjuna temple at Dharmapuri, Salem district.
Black granite pillar from the Henjarappa temple.
Slab from the Anjaneya temple at Henjeru $\frac{1}{2}$ mile from Hemavati.
Inscribed stone slab from the field of Hampanna.

- Gray, Mr. C.—
 Mouse (*Mus famulus*).
- Hatchell, Mr. D. G.—
 Crested hawk-eagle (*Spizaetus cirrhatus*).
- Henderson, Mr. J. R.—
 Ceylon copper coins. Dutch and English, local series.
- Hooper, Mr. E. D.—
 Seeds of *Ficus elastica*.
- Houghton, Mr. T. H. E.—
 Trees. Dwarf-palm, *Ficus Krishna* and another species of *Ficus*.
- Industrial and Arts Exhibition Committee, Secretary, Górávari—
 Graphite; model of a Chenchu hut; Koya arrow and bows; Koya dancing head-dress;
 Chenchu bird-piercing spear; country shoes (2 pairs).
- Industrial and Arts Exhibition Committee, Madras—
 Two kinds of drums.
 Baka (trumpet).
 Pair of brass kommulu (trumpets).
 Pair of albuja (flute and accessory).
 Kinnara (musical instrument).
 Koya waist cloth.
 Miniature fish-net.
 "Ethu-vala" (net).
 "Konti-vala" (net).
 Bundle of coloured plantain fibres.
 Bundles of white fibres.
 Bundle of hill grass.
 Bundle of thin reeds.
 Miniature boat.
- Kistna, Collector—
 Pottery and ornaments from a mound near Gudiváda.
- Kistna, District Forest Officer—
 Timber of *Bruguiera gymnorhiza*.
 Weed (*Ærua lanata*).
- Krishna Menon, Mr. M.—
 Bow and arrow.
 Umbrellas.
- Kurnool, District Forest Officer—
 Timber, bark, fibre, fruit and flower of *Careya arborea*.
 Fruit of *Miliusa velutina*.
 Timber of *Murraya Koenigii*.
 Fruit of *Gyrocarpus Jacquini*.
 Timber of *Polyalthia cerasoides*.
- Laljee Waljee, Khán Bahádur—
 Coal-shale and copper ore.
- Lewis, Mr. V.—
 Snakes (*Tropidonotus stolatus*).
- Lockyer, Mr. J. E.—
 Toowela (Hook-money) from Hassa, East Arabia.
- Mackenzie, Mr. G. T.—
 Arrows used by Ulladars with cross-bow.
- Madura, District Forest Officer—
 Forest products.
- Malabar, District Magistrate—
 Amulets.
- Municipal Commission, Madras—
 Crocodile (*Crocodilus palustris*).
 Orang-utan (*Simia satyrus*).
 Black panther (*Felis pardus*).
 Crested or falcated teal (*Eunetta falcata*).
 Purple-capped Lory.
 Parakeet.
 Pelican (*Pelecanus Philippensis*).
- Mysore Government—
 Timber specimens.

Fibres.

Bees' wax; kusame oil; dye stuff (Lichen); huchellu; areca-nuts; and Indian maize.

Nellore, District Forest Officer—
Timber specimens.

North Arcot, District Forest Officer—
Forest products.

North Coimbatore, District Forest Officer—
Timber specimens and forest products.
Leaves, gum, bark and root of *Garuga pinnata*.
Fruit of *Gardenia latifolia*.

North Malabar, District Forest Officer—
Timber specimens and forest products.

North Salem, District Forest Officer—
Timber of *Bassia latifolia*.

Parry & Co., Messrs., Madras—
Calcite (transparent).

Pogson, Mr. W. N.—
Iron pyrites in rock from Nandyal, Kurnool district.

Porritt, Mrs. H.—
Whip snake (*Dryophis mycterizans*)—

Prondeok, Mr. R. L.—
Rubbers.—Para rubber, moulded Para rubber, Para rubber tree seeds, Ceara scrap rubber, Ceara moulded rubber, Ceara moulded rubber cakes, *Cryptostegia* rubber.

Fibres.—Plantain fibre extractor. Samples of plantain fibre, *Girardinia* fibre and twine made from it, fibres of *Lusiosiphon*, *Debregeasia*, *Cryptostegia* and *Agave vicipara*. Rope made of plantain fibre.

Oils.—*Gaultheria* oil, sweet flag oil, lemon grass oil, *Andropogon* oil, *Litsaea* oil, wild cinnamon oil.

Gums of Mahogany, *Pomelo* and *Mylitta*.

Latex of *Castilloa elastica*.

Rubber of *Landolphia florida*.

Ramunni Menon, Mr. K.—
Marine chelonian (*Chelone mydas*, young).

Rungachary, Mr. T. M.—
Silver coin (Tiflis) with countermark of the Dutch East India Company.

Royal Asiatic Society (Bombay Branch)—
Coins. *Gold*.—Padmatanka (Southern India) found in the Nasik district.
Mamluk sultans—found in the Ahmadabad district.

Silver.—Muhammad (Moghul Emperor). Farruk Siyar. Aurangzib (found in the Panch Mahals district).

Copper—

Ahmad Shah I (Guzerat) found in the Nasik district.

Rutherford, Mr. E. W.—
Stick insect.

Salem, Collector—
Stone pillar from the Mallikarjuna temple at Dharmapuri.

Seton-Karr, Mr. H. W.—
Prehistoric implements from Banda.

South Arcot, Treasury Deputy Collector—
Copper-plate grants.

South Canara, Collector—
Ten coins of the Vijayanagar dynasty.

South Canara, District Forest Officer—
Timber specimens and forest products.
Resin of *Macaranga indica*.

Southern Circle, Conservator of Forests—
Wood, leaf and pods of *Entoda scandens*.

South Malabar, District Forest Officer—
Timber specimens.

South Salem, District Forest Officer—

- Timber of *Atalantia missionis*.
- „ of *Erithrina indica*.
- „ of *Hardwickia binata*.
- „ of *Pterocarpus marsupium*.
- „ *Bombax malabaricum*.

Strange, Mr. A. B.—

- Teeth, and tail with serrated spine, of skate.

Sundaram Mudali, Mr. A.—

- Abnormal fowl's egg.

Superintendent, Archæological Survey, Madras—

- Stone image of Subrahmanya swami and sculptured slabs unearthed from a temple and well in Kurumbur.
- Sandalwood grinding slab from Sugandalé.
- Inscribed stone from Adichanallur.
- Jain image from Vellúr.

Tanjore Collector—

- Cannons and cannon balls.

Trichinopoly, District Forest Officer—

- Forest products and timber specimens.
- Timber of *Memecylon edule*.

Trivandrum, School of Arts—

- Plantain fibre cloth.

Turner, Mr. G.—

- Serpentine (fibrous, compact and strong, green, yellowish and pale).

United Provinces, Government—

- Nineteen rupees—Benares East India Company (Moghul type).
- Three silver coins.
- Six copper coins.
- Three coins discovered in the Kheri district and two in the Jaunpur district.
- Five Moghul coins of Sháh Alam. Ahmadnagar and Farrukhabad mints.
- Eight coins (seven Oudh rupees, one Benares rupee).

Vadagarai, Zemindar of—

- Indian scaly ant-eater (*Manis pentadactyla*).

Vas, Mr. A.—

- Yam and cocoanuts.

Vizagapatam, Agent to the Governor—

- Moghul coin of Akbar.

Vizagapatam, District Forest Officer—

- Timber of *Stereospermum chelonoides*.
- Fruit of *Maba buxifolia*.

Ware, Mr. S. D.—

- Turritella limestone.
- Sandstone.
- Rock specimen (mixture of augite, plagioclase and hornblende).

APPENDIX B.

CLASSIFIED list of expenditure of the Government Museum during the year 1903-1904.

	Actuals, 1903-1904.	Revised estimate, 1903-1904.
	RS.	RS.
Salaries—		
Superintendent	9,058	9,600
Exchange compensation allowance	550	600
Local allowance	2,194	2,400
Total ..	<u>11,802</u>	<u>12,600</u>
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior second and third taxidermists, artist, writer, assistant writer, and twenty six peons—35 persons	5,524	6,171
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, five watchmen, water-pandal Brahmin, punkah-puller and chokra—14 persons	946	958
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons.	2,636	2,631
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person	48	48
Total Establishment ..	<u>9,154</u>	<u>9,808</u>
Allowance—		
Travelling allowance	739	1,200
Supplies and services—		
Cost of specimens purchased on tour	618	900
Objects of interest and coins purchased at head-quarters.	1,963	700
Fittings, furniture, etc., for the collections	2,535	2,400
Cost of books and publications	894	900
Library	2,181	2,000
Lithographic plates	612	500
Ammunition	10	15
Charges for feeding live animals	237	275
Expenses—		
Reading coin	5	10
Measurement	6	50
Total Supplies and services ..	<u>9,061</u>	<u>7,750</u>
Contingencies—		
Purchase of furniture (Europe stores)	238	326
Tour charges	383	285
Landing and shipping charges	43	50
Repairs to furniture	124	100
Cleaning charges	74	95
Postage charges	130	280
Telegraph charges	35	20
Telephone charges	200	200
Rents, rates and taxes	3,843	3,843
Office expenses including such articles as gum-pots, rat-traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes and match-boxes	603	633
Miscellaneous	451	..
Delhi Coronation Durbar charges	1,338	..
Total Contingencies ..	<u>7,462</u>	<u>5,832</u>
Grand Total ..	<u>38,218</u>	<u>37,190</u>

ORDER—No. 487, Educational, dated 9th August 1904.

Recorded. The continued and growing popularity of the museum is most gratifying. The Government recognize that this is largely due to the solicitous care with which Mr. Thurston provides facilities for visitors.

2. The thanks of His Excellency the Governor in Council are due to all those who have rendered help to the Superintendent or made donations.

(True Extract.)

H. D. TAYLOR,
Ag. Secretary to Government.

GOVERNMENT OF MADRAS.

E D U C A T I O N A L D E P A R T M E N T ,

READ—the following paper :—

Letter—from E. THURSTON, Esq., Superintendent, Government Museum.

To—the Secretary to Government, Educational Department.

Dated—Madras, the 7th July 1906.

No.—28-D.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and Connemara Public Library during 1905-1906, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

**Administration Report of the Madras Government Museum for the year
1905-1906.**

VISITORS.—The total numbers of visitors to the old and new buildings were 890,190 and 351,683 against 897,058 and 377,353 in 1904-1905. The largest number of visitors on a single day was 23,327 to the old, and 22,652 to the new building on 7th January (Dwadasi festival). The total numbers of visitors on Sundays were 88,800 to the old and 83,494 to the new building against 127,330 and 126,139 in 1904-1905. The excess last year was due to the fact that the Kannu Pongal festival fell on a Sunday. The number of gosha females who visited the Museum on the monthly Saturdays set apart for them was 8,263.

The Museum was visited by Their Royal Highnesses the Prince and Princess of Wales, who were received on arrival by His Excellency the Governor and Lady Ampthill. Special arrangements were made for gosha visits by the ladies of the families of Maharaja Sri Vikrama Deo of Jeypore, Maharaja Sri Rao Sir Venkatasvetachalapati Ranga Rao Bahadur and Kumara Raja of Bobbili, and the Zamindarini of Nuzvid.

2. BUILDINGS AND ESTABLISHMENT.—The Consulting Architect to Government was consulted concerning the construction of a new gallery for the pre-historic collection purchased from Mr. R. Bruce Foote, and of an annexe to the marine gallery.

A theft occurred, when I was absent on tour, of silver filigree ware. There was grave reason to believe that the theft was committed by some member of my staff, but no definite proof was forthcoming.

3. THEATRE.—The theatre was used on eight occasions during the year, as follows :—

Amateur Dramatic Society	..	..	..	..	..	..	4
Collegiate School, entertainment and prize-giving	..	..	..	..	..	..	2
Presidency Training School for Mistresses, prize-giving	..	..	..	..	..	..	1
Concert in aid of the settlement of ladies to work among poor European and Eurasian women	..	..	..	..	..	..	1

4. ANTHROPOLOGY.—The book referred to in my last report as "Some Manners and Customs in Southern India" was, with a change of title to "Ethnographic Notes in Southern India", in the stage of advanced proof at the end of the year. The greater part of my time, during the year under review, was devoted to a book on the tribes and castes of Southern India, on lines similar to Risley's "Tribes and Castes of Bengal", for which a mass of manuscript was prepared. The accounts of the majority of the more important castes and tribes are completed. But much investigation remains to be carried out, more especially in Ganjam and Vizagapatam, before the book is ready for publication.

In the course of the year I made two tours in connection with the work of the ethnographic survey, viz., to the Kurnool district, and to the Nilgiri hills and the Wynaad. The primary object of the visit to the former locality was to examine the Chenchus or Chentsus, who inhabit the jungles of the Nallamalai hills. But the opportunity was also taken to record the physical measurements of various Telugu classes inhabiting the plains of Kurnool at Nandyal and Pániyam. A detailed analysis of the results of examination of South Indian heads on the living subject will be published hereafter; and it will suffice, for the purpose of the present report, to place on record the following comparative data, showing the type of head in the Canarese and Marátha (North-West), Telugu (North-East), and Malayálam and Tamil (South) areas. The figures bring out clearly the correlation, so far as the type of head is concerned, between the inhabitants of the Canarese, Marátha and Telugu areas, who have a higher cephalic index than the dwellers in the Malayálam and Tamil countries.

Cephalic Index.

Tamil and Malayálam.			Canarese and Marátha.			Telugu.		
Tíyan	..	72.6	Bestha	..	77.1	Chenchu	..	74.3
Kádir	..	72.9	Kumba	..	77.3	Golla	..	77.5
Paraiyan	..	73.6	Bédar	..	77.3	Boya	..	77.9
Vellála	..	74.1	Agasa	..	78.5	Baliya	..	78
Palli	..	74.2	Panchála	..	79	Kápu	..	78
Agamudaiyan	..	74.2	Holeya	..	79.1	Uppara	..	78.8
Uráli	..	74.6	Rangári	..	79.8	Mangala	..	78.8
Pallan	..	75.9	Vakkaliga	..	81.7	Yerukala	..	78.6
Idaiyan	..	76	Suka Sálé	..	81.8	Médara	..	80.7

Some Chenchus still exhibit the primitive short stature and high nasal index, which are characteristic of other jungle tribes, such as the Kádirs, Paniyans and Kurumbas. But there is a very conspicuous want of uniformity in their physical characters, and many individuals are to be met with above middle height or tall, with long narrow noses. A case is noted in the Kurnool Manual, in which a brick-maker married a Chenchu girl, and I was told of a Boya man who had married into the tribe, and was living in a gudem (Chenchu settlement). In this way is the pure type of Chenchu metamorphosed. By the dolichocephalic type of head, which, as shown by the foregoing table, has persisted, and which the Chenchus possess in common with various other jungle tribes, they are at once differentiated from the mesaticephalic dwellers in the plains near the foot of the Nallamalais. In one form of marriage among the Chenchus, the bride and bridegroom sit opposite each other with arrows stuck upright in the ground between them. The importance of the arrow with the Chenchus as with the Yánádis of Nellore is that the moment when it casts no shadow is the auspicious time for the completion of the marriage rites. A gang of nomad Yerukalas, whom I examined at Nandyal, absolutely refused to sit on a chair, and I had to measure their heads while they squatted on the ground. To get rid of my evil influence, they subsequently went through the ceremony of waving red coloured water (arati) and sacrificing fowls.

During my stay on the Nilgiri plateau, detailed enquiries were made concerning the "manners and customs" of the Badagas and Kotas. The visit to the Wynaad was made with the object of clearing up the identity of the Naikers, who are separated from the Kurumbas in a note published by M. Louis Lapicque in the *Comptes rendus des Séances de la Société de Biologie*. From an examination of them at Cherambádi, I gathered that the name Naiker or Shóla Naiker is applied to Jén Kurumbas who have settled in the neighbourhood of that village, and work for Chettis or on the estates of European planters.

In the course of his investigation of the Todas of the Nilgiris, who practice the adelphic form of polyandry, Dr. W. H. R. Rivers found that, of 320 males examined, 41 or 12.8 per cent., and of 183 females only 2 or 1.1 per cent. were typical examples of red-green colour-blindness. During my visit to the Nilgiris I examined the male Badagas and Kotas with Holmgren's wools, and as a control with the apparatus known as Lovibond's tintometer. The result was that red-green colour-blindness was found to be present in 6 out of 246 Badagas, or 2.5 per cent.; and there was no suspicion of this type of colour-blindness in 121 Kotas who were tested. Both the Badagas and Kotas afforded an example of what Dr. Rivers calls the Torres Straits type, i.e., "red was confused with pink, green with blue, and blue with violet, the

two last errors being due to deficiency of nomenclature and to some insensitivity to blue". It may be accepted as a general proposition that the natives of Southern India, Brahman, non-Brahman, and Muhammadan, have a greater appreciation for and are more sensitive to yellow and pink than blue.

The visual acuity of the Badagas, Kotas, Chenchus and others was examined by means of Cohn's letter E, number 6, and 1 may here place on record the average distance in metres at which the letter was recognised by the various classes examined by Dr. Rivers, Mr. Rangachari and myself in Southern India—

								METRES.
16 Shólagas (Rivers)	..	..	..	..	..	..	..	12.9
94 Kotas	..	..	..	..	..	..	..	12.8
180 Badagas	..	..	..	..	..	..	..	12.6
50 Tamil Paraiyans	..	..	..	..	..	..	..	12.5
58 Telugu agriculturists	..	..	..	..	..	..	..	12.4
28 Chenchus	..	..	..	..	..	..	..	12.3
55 Urális (Rivers)	..	..	..	..	..	..	..	12.2
30 Brahmans, Mysore	..	..	..	..	..	..	..	12.2
39 Non-Brahmans, Mysore	..	..	..	..	..	..	..	12.2

The maxima distances, at which the position of the letter was recognised, were :— Shólaga, 18 m. ; Paraiyan, 19 m. ; Badaga and Dikshitar Brahman 20 m. In all classes, it may be noted, the visual acuity ranged between 12 and 13 metres, *i.e.*, between visual acuity 2.15 and visual acuity 2.03. These classes, or groups of classes, cover a wide range of degrees of civilisation from the wild jungle Shólagas, Urális and Chenchus to the cultured Brahman. And, though the jungle man, who has to search for his food and mark the tracks and traces of wild beasts, undoubtedly possesses a specially-trained keenness of vision for the exigencies of his primitive life, the figures show that, as regards ordinary visual acuity, he has no advantage over the more highly-civilised classes.

An independent tour was made by my assistant, Mr. K. Rangachari, to the Madura and Tanjore districts with a view to obtaining information concerning the Vallambans, Kallans, Valaiyans, Valluvans, Sáliyans, Patnúlkarans and Náttukottai Chettis.

An Edison's phonograph for the first time accompanied us on our expeditions, and we secured valuable records of tribal songs and instrumental music, marriage songs, temple nágasvaram music, védic recitations by Brahmans, etc. It is proposed to send some of the best of the records to Mr. C. S. Myers for the Museum of Comparative Music at Cambridge, and retain duplicates here. The phonograph has proved itself to be an invaluable property as a means of conciliating timid and suspicious folk, who are afraid of anthropometric methods, and no travelling anthropologist should be without it.

Among the additions to the ethnological section of the Museum, the following may be noted :—

Dress made of the leaves of a sedge (thanda) worn by Thanda Pulayan women of the Cochin State. When a girl first assumes this garment, to replace the strip of areca palm worn in childhood, a ceremony called thanda kalyánam or thanda marriage is performed, and a feast held.

Kádir digging stick tipped with iron, apparatus for making fire with flint and steel, and bamboo tube filled with mattupal, *i.e.*, bamboo seeds mixed with honey, which are roasted in the tube coated with a covering of earth, and considered a great delicacy.

A series of bamboo combs worn by the Kádir women of the Anaimalai hills, which shows clearly that the patterns thereon are conventional designs, and not a system of hieroglyphics, such as Dr. Preuss (Globus, 1899) makes out the strikingly similar designs on the bamboo combs worn by the Negritos of Malacca to be.

Bows and arrows used by the Eravalers of Cochin.

Flint and steel, and bows and arrows used by the Chenchus. In a long distance shooting match, the prize was won with a carry of 144 yards. It was noted by Captain Newbold that the Chenchus are not remarkably expert as archers, to judge

from the awkwardness they exhibited in despatching an unfortunate sheep picketed for them at forty yards, which was held out to them as the prize for the best marksman.

Cord drill used by the Badagas for making fire by friction at the annual fire-walking ceremony. This method of obtaining fire is called *niligolu* or vertical stick. This stick is made of a twig of *Rhodomirtus tomentosus*, which is rotated in a socket in a long thick piece of a branch of *Debregeasia velutina*, in which a row of sockets has been made. The rotation is produced by a cord passed several times round the vertical stick, of which the two ends are pulled alternately. The horizontal block is pressed firmly on the ground by the toes of a man, who presses a half cocoanut shell on the top of the vertical stick, so as to force it down into the cavity. A Badaga, who failed in an attempt to demonstrate the making of fire by this method, gave as an excuse that he was under worldly pollution, from which he would be free at the time of the fire-walking ceremony.

Three forms of apparatus used by the Kotas in making fire by friction, viz., (1) a vertical and horizontal stick with grooves and sockets, both made of twigs of *Rhodomirtus tomentosus*. (2) A small piece of the root of *Salix tetrasperma* is spliced into a stick, which is rotated in a socket in a piece of the root of the same tree. (3) A small piece of the root of this tree, made tapering at each end with a knife or fragment of bottle glass, is firmly fixed into the wooden handle of a drill. A shallow cavity and groove are made in a block of the same wood, and a few crystalline particles from the ground are dropped into the cavity. The block is placed on several layers of cotton cloth, on which chips of wood, broken up small by crushing them in the palm of the hand, are piled up round the block in the vicinity of the groove. The handle is, by means of a half cocoanut shell, pressed firmly down, and twisted between the palms, or rotated by means of a cord. The incandescent particles, falling on to the chips, ignite them.

Iron sickles, with imitation buffalo horns on the tip, made by Kotas, which are placed on or by the side of the cot on which a Badaga corpse is laid at the time of the funeral.

Toys made of twigs curved so as to represent buffalo horns, which Toda men and children may often be seen making as they tramp over the downs.

Sacrificial knife from an Amman Koil (temple) in the Madura district, used for cutting off the heads of goats or sheep at a single stroke. The end of the handle represents a Yāli, and at the base of the blade curved figures represent the canine teeth of Kāli.

Amana paliga (tortoise plank) or kurmmasana, the traditional seat of Nambūtiri Brāhmans, made of jāk (*Artocarpus integrifolia*) wood, which represents a tortoise, and is used on ceremonial occasions.

Painted and varnished mimic arrow (charakkol), with barbs of peacock feathers, used at the Nāyar marriage ceremony in Malabar.

A series of painted clay gods, worshipped by fishermen at Gopalpūr in Ganjam. The figures, which are set up in small shrines facing the sea, are worshipped before setting out on fishing expeditions, or when there is danger from epidemic disease. The fisher-folk at first objected to their gods being taken away, but consented when they were told that the Government had heard of their devotion to them, and wanted to possess them. The gods include Bengālī Bābu, who is represented wearing a hat, and riding on a black horse. He blesses the fishermen, secures large hauls of fish for them, and guards them against danger when out fishing. Veyyi Kannalu Ammavāru, or the goddess of a thousand eyes, is represented by a clay pot pierced with holes, in which a gingelly (*Sesamum indicum*) oil light is burnt. She attends to the general welfare of the fishing community.

A rude female figure, life size, scratched in a plank of wood, with Arabic inscriptions drawn on it, which was washed ashore on the Tellicherry beach in Malabar. A still larger and more artistically executed figure was found on the sea-shore at Calicut a few years ago.

Kernels of cocoanuts used in Malabar as tallies. When weighing kopra (dried cocoanut kernels), it is customary to keep the tally by making holes on the outer surface of a kernel with the index needle of the weighing beam. A further form of Malabar tally is represented by a string of cocoanut fibre with knots made in it.

Neolithic cells from the Pulivendla taluk of the Cuddapah district, concerning which the Rev. J. Macnair writes that "palæoliths abound in great numbers in various parts of this district, but up till now I have not heard of neoliths. They are made of what appears to be a close-grained heavy limestone."

A small iron-age pottery vase of unusual design, and iron implement from Echūr in the Conjeeveram taluk of the Chingleput district. There is a local tradition that the place was occupied by the Chōla kings, and that buried treasure is hidden there.

Skull received from Hampi (Vijayanagar) concerning which Mr. A. Rea writes as follows. "I saw a very extensive structural reservoir near the palace, which had a large deposit of earth in its bed. In digging, the sub-divisional officer of the Public Works Department found a vaulted chamber below the floor, and surmised that it was a burial ground, as in it a skull and some bones were found. The remains may either be those of the sacrifice made before the tank was built, or of a drowned person." The skull is small and eminently dolichocephalic (length 16·8 cm. breadth 11·6 cm., index 69). It is apparently that of a man of short stature, and recalls to mind the skulls of jungle Kurumbas (necromancers), which are in my possession.

An imported solid glass bangle, broken into two pieces, from which a venomous insect is reported to have burst forth, and stung a girl on the wrist when it was placed thereon. The insect was not sent with the bangle, but it is said to be small with a dark head, similar to the insect that lives in rice grain. A scare has arisen in connection with this insect, which is said to have taken up its abode in imported German bangles, which compete with the indigenous industry of the Gāzulas (glass-bangle makers).

I was consulted in connection with a case in Malabar, in which a young man, apparently in good health, walked home with two other men after a feast, chewing betel. Arriving at his home he went to sleep, and was found dead next morning. Blood was described as "oozing out of his eyes." It was given out that the cause of death was an insect, which infests betel leaves and is very poisonous. The belief in death from chewing or swallowing the veththilai or vettila poochi (betel insect) is a very general one, and is so strong that, when a person suffers from giddiness after chewing betel, he is afraid that he has partaken of the poisonous insect. Native gentlemen take particular care to examine every betel leaf, wipe it with a cloth and smear chunām (lime) over it before chewing. My assistant has made enquiries concerning the poochi, but no one can tell him what it is like. It is called by Gundert (Malayalam dictionary) vettila pámbu or moorkhan (snake) or vettila thél (scorpion).

5. ARCHÆOLOGY AND ART.—The Director-General of Archæology wrote to the Curator of the Lahore Museum that "in Madras, the Museum authorities are in favour of purely provincial collections being made, and the Græco-Indian sculptures have accordingly been relegated to dark cellars, where they are appreciated by no one. It might be useful, therefore, to address Mr. Thurston, with a view to recovering them for the Lahore Museum." The sculptures referred to were excavated at Yusofzai in the Punjáb, and received from Major Cole in 1885. They have, as desired, been forwarded to the Lahore Museum with the exception of a few typical plaques, which have been retained for comparison with the later sculptures at the Amarāvati stupa in the Kistna district (South India).

The splendid collection of bronzes, iron weapons and implements, pottery and human bones, excavated under the direction of Mr. A. Rea, Superintendent of the Archæological Survey, at Aditanallūr in the Tinnevely district, has been arranged in the new gallery built for its reception. Concerning the Aditanallūr "prehistoric" burial site, M. Lapicque writes as follows (Bull. Muséum d'Histoire naturelle, 1905) "Avec une autorisation spéciale de l'administration anglaise, j'allai pratiquer quelques journées de fouilles dans le gisement réservé d'Adichanallour. J'ai rapporté un spécimen des urnes funéraires, avec une collection assez complète du mobilier funéraire. J'ai rapporté aussi un crâne en assez bon état et parfaitement déterminable. It est

hyperdolichocéphale, et s'accorde avec la série que le service d'archéologie de Madras a déjà réunie. Je pense que la race d'Adichanallour appartient aux Proto-Dravidiens." The measurements of six of the most perfect skulls from Aditanallur in the Museum collection give the following results :—

Cephalic length, cm.	Cephalic breadth, cm.	Cephalic index.
18·8	12·4	66
19·1	12·7	66·5
18·3	12·4	67·8
18	12·2	67·8
18	12·8	71·1
16·8	13·1	78

* Two of the skulls are conspicuously prognathous—a character which appears in a few Tamil and Telugu skulls in the Museum collection.

The following extract from my notes shows that the hyperdolichocephalic type survives in the dolichocephalic inhabitants of the Tamil country at the present day :—

Class.	Number examined.	Cephalic index below 70.
Palli	40	64·4 ; 66·9 ; 67 ; 68·2 ; 68·9 ; 69·6.
Paraiyan	40	64·8 ; 69·2 ; 69·3 ; 69·5.
Vellala	40	67·9 ; 69·6.

A series of seventeen seals and a charm, which were purchased by Government in 1859 at a sale of the effects of the Carnatic family, were transferred to the Museum, together with impressions from the seals with English translations, of which the following are examples :—

Shahāmat Jang, the first sovereign, 1157 (= A.D. 1744-45).

Wālā-Jāh, the second sovereign, 1163 (= A.D. 1749-50).

Unalterable seal of the Sircar (Government) of Nawāb Muhammad Gaus Khān Bahādur, the prop of kingdoms, Sovereign of the Carnatic, 1258 (= A.D. 1842-43).

The Honorable of the lords of high dignity chosen from the chiefs of great magnitude; councillor of the affairs of people; master of sword and pen; Amīr-ul-Hind Wālā-Jāh; Umdat-u-Umrā; Madar-ul-Mamālik; Muktar-ul-mulk 'Azim-ud-daula Nawāb Muhammad Gaus Khān Bahādur Shahāmat Jang, the Commander-in-Chief and Sūbadar of the country of the Carnatic, 1258.

In connection with the scheme for the preparation of pattern books of design, referred to in my last report, the entertainment of two draftsmen for a year with effect from 1st October 1905, to work under the supervision of Mr. M. Velayudasari, Assistant Superintendent of the School of Arts, and controlled by myself, was sanctioned. The draftsmen who were selected to carry out their work have been engaged in making detailed working drawings of various articles in wood and metal preserved at the Museum, and have done their work to my entire satisfaction. Mr. Velayudasari was deputed to attend a Conference at Calcutta, whereat the subject of pattern books was discussed by representatives of the leading Schools of Art.

At Tanjore the manufacture of metal swāmi (Hindu deity) work, in the shape of trays, jars, etc., made of copper heavily encrusted with silver, is carried out on an extensive scale at the present day. This industry is a modern adaptation of an older art, and the demand for the wares is almost entirely European. The Museum secured a few examples of the older type of Tanjore metal ware, on which the modern industry is based.

The metal-workers of Kurumbalūr in the Trichinopoly district received, at the request of Her Royal Highness the Princess of Wales, an order for specimens of vases made of brass inlaid with zinc. This little local industry is very little known, and is worthy of encouragement.

A series was exhibited, illustrating, in its various stages, the wax and block-printing industries of Kumbakōnam, Masulipatam, and Narsapūr, which were further illustrated by pictures from Rouffaer's 'Indische Batik-kunst und ihre geschichte.'

A clay model of the churning of the sea of milk, made at Kondapalle in the Kistna district, was acquired at the Fine Arts Exhibition. It represents the demons and celestial dēvatās holding the serpent Vasuki, which is wound round the mountain churning staff, with Vishnu in the form of a tortoise as its pivot.

Extensive additions were made, by purchase under the Treasure Trove Act, and through the medium of native agents who were engaged in hunting up specimens in the local bazaars, to the art metalware collection, which has developed into one of very considerable value.

A series of carved wooden panels from an old temple car at Rāmēsvaram, forwarded by Mr. A. Rea, was utilized for the decoration of the passage outside the Superintendent's office.

6. NATURAL HISTORY.—In connection with a scheme for the establishment of an aquarium on the sea-shore, which has been worked out in detail, I may appropriately quote the words of Government (G.O., No. 64, Educational, dated 6th February 1906). "His Excellency the Governor in Council has had under consideration the establishment on the Marina of the City of Madras of a Marine Aquarium, not only for educational and scientific purposes as an extension of the museum and an annexe to the Presidency College, but as an exhibition open to the public, which His Excellency is confident will prove to be both popular and attractive. Its construction will now be approved and sanctioned. The site selected for it is on the foreshore opposite the Presidency College. The aquarium will be placed under the control of the Superintendent of the Government Museum as Director, and of a committee composed of the following gentlemen:—The Hon'ble Mr. A. G. Bourne, Mr. J. R. Henderson, Mr. P. F. Fyson, Mr. K. Ramunni Menon and Major W. Molesworth, I.M.S. The committee will be assisted in the work of the aquarium by the Demonstrator of Zoology at the Presidency College, and, if he will give his services, by the Demonstrator for the time being at the Christian College." Detailed proposals regarding the establishment, etc., to be maintained in connection with the aquarium were, after consultation with the committee, submitted to Government. The plan provides for ten tanks for marine animals, a central pond and small tanks for fresh-water animals, and a large pond for sharks and dog-fishes.

A very interesting dry Molluscan and spirit collection of Cœlenterata, Echinodermata, Mollusca, and Chordata, illustrating the littoral marine fauna of Madras, the investigation of which is being systematically carried out by Mr. K. Ramunni Menon of the Presidency College, was forwarded by him for conservation at the museum.

To Mr. Edgar A. Smith of the British Museum, Natural History, the museum was indebted for the return of a small named collection illustrating the shallow-water molluscan fauna of Malabar and South Canara, which was sent to him for favour of identification.

To the collection of marine mammalia were added the skull, lower jaw and baleen of a fin-whale (*Balænoptera*), which was cast ashore near Covelong, south of Madras, and the skull and lower jaw of a whale (*Balænoptera*?) which was stranded on the beach at Shiroor in the Coondapoor taluk of South Canara.

A skin of *Paradoxurus jerdoni*, the brown palm-civet (kat nai or forest dog) from the Salem district, was received from Mr. R. E. Haffield, who informs me that it is a vegetarian. Its habits are stated by Blanford (Fauna of British India) to be unknown.

Albino bandicoot rats (*Nesocia bandicota*) were received from the medical officer in charge of the destruction of rats in connection with plague-prevention measures.

The museum taxidermist was deputed to accompany Mr. R. Foulkes on a shooting expedition in Salem, Coimbatore, Malabar and South Canara, with a view to adding to the collection of birds.

To Captain F. D. S. Fayrer, I.M.S., the museum was indebted for a large number of birds illustrating the avi-fauna of the City of Madras.

To the collection of live animals, the following additions were made:—

- Indian Gazelle (*Gazella bennetti*).
- Madras Langur (*Semnopithecus priamus*).
- Bonnet Monkey (*Macacus sinicus*).
- White rats, illustrating albinism.
- Small Indian Civet (*Viverricula malaccensis*).
- Southern Grackle (*Eulabes religiosa*).
- Nicobar Pigeons (*Calenas nicobarica*).

7. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 16,839 against 17,278 in 1904-1905—

Largest number of readers in a day	..	..	..	..	..	165
Smallest	..	..	..	..	..	* 3
Largest	..	..	..	..	..	155
Smallest	..	..	..	..	..	19

The number of standard works added to the library was 410, of which 359 were acquired by purchase and 51 presented. A very interesting acquisition was a bound volume, containing the original water-colour paintings of orchids by Mrs. Jerdon, wife of the Indian naturalist T. C. Jerdon.

As usual I append, as a general indication of the class of literature resorted to by readers, a list of books issued during the last two years under various subject catalogue heads :—

1904-1905, 1905-1906.						
Anatomy ; biology ; natural history ; zoology	..	..	..	..	1,022	1,061
Anthropology ; folklore	..	..	..	..	653	594
Archæology ; architecture	..	..	..	..	353	311
Arts ; industries	..	..	..	..	823	1,307
Atlases ; maps	..	..	..	..	80	82
Belles lettres	..	..	..	..	1,620	1,714
Botany ; arboriculture ; horticulture	..	..	..	..	251	342
Chemistry ; agriculture ; photography	..	..	..	..	659	424
Classics	..	..	..	..	262	171
Dictionaries ; encyclopædias ; gazetteers ; manuals	..	..	..	..	4,178	4,209
Economic products	..	..	..	..	153	98
Education ; ethics ; logic ; metaphysics ; philosophy ; political economy	..	..	..	..	1,515	1,613
Exhibitions	..	..	..	..	73	67
Forestry ; timbers	..	..	..	..	77	29
Geography ; physical geography ; physiography	..	..	..	..	115	90
Geology ; palæontology	..	..	..	..	102	217
History	..	..	..	..	2,142	2,189
Jurisprudence	..	..	..	..	512	466
Medicine ; surgery ; pathology	..	..	..	..	456	348
Microscopy	..	..	..	..	63	51
Mineralogy ; metallurgy	..	..	..	..	54	91
Natural philosophy	..	..	..	..	627	618
Numismatics ; medals ; heraldry	..	..	..	..	79	94
Philology ; epigraphy	..	..	..	..	236	303
Photographs	..	..	..	..	101	26
Physiology	..	..	..	..	412	176
Public health	..	..	..	..	274	127
Religion	..	..	..	..	655	924
Sports and games	..	..	..	..	392	375
Travels ; voyages	..	..	..	..	312	726
Fort St. George Gazette (other than current issues)	..	..	..	..	1,009	1,222
Vernacular languages	..	..	..	..	271	133

The scheme submitted by the Syndicate of the University of Madras in 1904 for the establishment of a University Library in connection with the Connemara Public Library was approved by Government, subject to certain modifications proposed by myself, in G.O., No. 361, Educational, dated 26th May 1905. An estimate for constructing additional book-cases, etc., to accommodate the proposed University Library, was sanctioned in G.O., No. 2530 W., dated 26th December 1905.

8. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

* The day on which Their Royal Highnesses the Prince and Princess of Wales arrived in Madras.

APPENDIX A.

DONATIONS, 1905-1906.

Asiatic Society of Bengal—

- Silver coin, Shāhjahānabad, of Ahmad Shāh found in the district of Mean Wali.
- Two silver coins of Mahmud Shāh Durrani found in the district of Jhang.
- Eight silver coins of Aurangzib, Shāh Alam Bahādur, Jahāndār, Farrukhsiyar, Ahmad Shāh Bahādur, Muhammad Shāh and Zamān Shāh found in the Jhelum district.
- Silver coin of Aurangzib found in the Lahore district.
- Five rupees of Shāh Alam found in the Dinajpur district.
- Nine rupees of the French Company struck in the names of Ahmad Shāh, Alamgir and Shāh Alām found in the Rungpur district.
- Five coins found in the Murshidabad district.
- Heavy rupee of Jehangir found in the Sialkot district.
- Twenty-one silver coins found in the Manbhum district.
- Five Indo-Sassanian coins found in the Jubbulpur district.
- Eleven silver coins of the Assam Kings, Muhammad Shāh, and French E. I. Co. imitation Mughal found in the Sibsagar district.
- Four silver coins found in the Shahpur district.
- Three rupees of Ahmad Shāh.
- Two Ujjain rupees of Shāh Alam.
- Six rupees of Indore.
- A coin found in the Midnapur district.

Barnes, Mr. E.—

Squirrel.

Bellary division, Executive Engineer—

- Skull and bones discovered beneath the floor of a reservoir at Hampi.
- Iron lamp of the dwajastambha in front of Vitalaswami temple at Hampi.

Cuddapah, District Forest Officer—

Timber of *Holarrhena antidyenterica*.

Demas State, Durbar—

Silver coins.

Duffus, Mr. G.—

Nicobar pigeons, alive (*Caloenas nicobarica*).

Fayrer, Captain F. D. S.—

A collection of birds from Madras.

Canara, South, Collector—

Skull and lower jaw bones of a whale.

Canara, South, District Forest Officer—

Resin of *Stereospermum xylocarpum*, *Hopea parviflora* and *Macaranga indica*.

Coimbatore, North, District Forest Officer—

- Tendrils, bark, bark extracted from the root, and fibre of *Ventilago calyculata*.
- Fruits of *Cellis australis* and *Gmelina arborea*.
- Timber and bark of *Flacourtia Ramontchi*.
- Bark and fruit of *Cæsalpinia sepiaria*.

Coimbatore, South, District Forest Officer—

Timber, leaves and oleo-resin of *Mesua ferrea*.

Corporation, Madras—

- Hyæna (*Hyæna striata*).
- Leopard (*Felis pardus*).
- Crocodile (*Crocodilus palustris*).
- Crowned pigeon.

Ghulam Muhammad Sahib—

Duck's egg (abnormal).

Government Epigraphist—

- Inscribed slab from the Gopalkrishna temple at Malepadu in the Proddatur taluk, Cuddapah district.
- Inscribed pillar lying near a well west of the same village.
- Two pillars with ancient characters inscribed on them.
- Inscribed slab set up in a field by the side of the road from Chilamakuru to Muddanur.
- Inscribed Pāndyan stone from Tirukkurungudi, Tinnevely district.

Haffield, Mr. R. E.—

A collection of snakes, phasmid (stick insect), and brown palm civet (forest dog) *Paradoxurus Jerdoni*.

Hoare, Mr. W. E.—

Snake, *Gongylophis conicus* (alive), mottled wood-owl (*Syrnium ocellatum*).

Jones, Mr. E.—

Indian palm civet (*Paradoxurus niger*).

Justice, Captain W. A.—

Albino bandicoot (*Nesocia bandicota*).

Kirwan, Mr. L. E.—

Paper-wasp's nest.

Krishnasami Rao, Mr. M. V.—

Live rose-ringed paroquet (*Palæornis torquatus*).

Kudligi, Range officer—

Timber of *Terminalia Arjuna*.

Mac Gregor, Lieutenant R. D.—

Snake (*Oligodon ellioti*).

MacIver, Mr. J.—

Plank with female figure washed ashore at Tellicherry.

Mainwaring, Mr. E.—

Skull of wolf (*Canis lupus*).

Morgan, Mr. J. G.—

Stone shot from Covelong fort.

Morrison, Mr. C.—

Two gold coins.

Two silver coins of Ma'bar (Muhammadan Viceroys).

Copper coin.

Oakes, Captain G. R.—

Earthsnake (*Platyplectrurus madurensis*).

Polur, Range officer—

Seeds of *Cassia sophora*.

Pudukkóttai, Diwan—

Boomerangs (valai tadi).

Ramunni Menon, Mr. K.—

Series of specimens illustrating marine fauna of Madras.

Rangachari, Mr. T. K.—

Collection of Indo-Danish coins.

Rea, Mr. A.—

Wooden panels of an old car at Rámésvaram.

Earthen articles from the Chingleput, Cuddapah and Tinnevely districts.

Stone ruler, mortar and pestle (marble) from Tadpatri.

Pebbles from Palladam, Coimbatore district; stone slabs from Udipi, South Canara district. Inkstands, Anjaneya, soapstone vessels, Nandi and lingam from Harpanahalli, Bellary district.

Soap and black stone chess pieces from Vinukonda, Guntúr district.

Sculptures from Danavulapadu, Cuddapah district.

Rencontre, Mrs. E.—

Black scorpion.

Royal Asiatic Society (Bombay Branch)—

Three gold coins of Pratāp Deva Raya, Vijayanagar dynasty.

Silver and square gold coin, and round gold mohur of Akbar.

Gold coin of Muradbin Salim II, Ottoman Sultan, A. H. 982, found in Ahmedabad district.

Silver coins of Shāh Jahān, Aurangzib, Jehandar, Farrukhsiyar, Muhammad Shāh and Shāh Alam found in Ahmadnagar district.

Saldhana, Mr. R. W.—

Wooden images of gods from Gopalpur, Ganjām district

Salem, North, District Forest-officer—

Timber of *Dolichandrone falcata*

Salem, South, District Forest-officer—

Gum of *Hardwickia binata* and *Prosopis spicihora*.

Santiang, Mr. L.—

Double egg of domestic fowl.

Sivasubramania Pillai, Mr. R.—

Photograph of palmyra tree with fourteen branches.

Strange, Mr. A. B.—

Bull frogs (*Rana tigrina*).

Tanjore, District Magistrate—

Colt's revolver.

Tottenham, Mr. L.—

Mimic bow used at Nayar weddings.

Amana paliga.

Elephant goad.

Lamp.

United Provinces, Government—

Fifteen Oudh and Benares rupees.

Copper coin found in Mawza Bhitaura, Fyzabad district.

Twenty-four coins found in Durgapur, Bara Banki district.

Ten silver coins found at Kanwara.

Two silver Moghul coins found at Nehtaur.

Silver coin from Bareilly district.

Three Pathán coins, and a copper coin from Bara Banki district.

Four silver coins from Farrukhabad district.

Seven silver coins from Babraich district.

Silver coin found in the Azamgarh district.

Three copper coins found in the Banda district.

Four Moghul rupees found in Agra district.

Sixteen silver Moghul coins found at Harkhanti in the Jalaun district.

Eight Moghul rupees found in the Fyzabad district.

Three Moghul rupees found at Partabgarh district.

Vernon, Mr. H. A. B.—

Live Monkey, juv. (*Macacus sinicus*).

Vincent, Mr. R.—

Kādir combs.

Whittaker, Mr. J.—

Altered amphibolite with a considerable quantity of felspar, which is largely orthoclase.

— — —

APPENDIX B.

CLASSIFIED list of expenditure of the Government Museum during the year 1905-1906.

	Actuals, 1905-1906. RS.	Revised estimate, 1905-1906. RS.
Salaries—		
Superintendent	9,600	9,600
Exchange compensation allowance	600	600
Local allowance	2,400	2,400
Total ..	12,600	12,600
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer and 26 peons—33 persons	6,959	..
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, six watchmen, water- pandal Brahman, latrine sweeper, punkah-puller and chokra—16 persons	1,122	..
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons—6 persons	2,670	..
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person	47	..
Total, Establishment ..	10,798	10,800
Allowance—		
Travelling allowance	1,151	1,400
Supplies and services—		
Specimens purchased on tour	828	..
Objects of interest and coin purchased at head-quarters.	1,117	..
Fittings, furniture, etc., for the collections	1,833	..
Books and publications	850	..
Library	2,074	..
Lithographic plates	424	..
Ammunition	15	..
Charges for feeding live animals	216	..
Expenses—		
Reading coins	3	..
Total, Supplies and services ..	7,360	5,300
Contingencies—		
Purchase of furniture (Europe stores)	47	..
Tour charges	218	..
Landing and shipping charges	25	..
Repairs to furniture	97	..
Cleaning charges	27	..
Postage	200	..
Telegraph	10	..
Telephone	185	..
Rents, rates and taxes	3,843	..
Office expenses including such articles as gum-pots, rat- traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes and match boxes	601	..
Photographs for monograph on carpet making ..	102	..
Total, Contingencies ..	5,355	5,900
Grand Total ..	37,264	36,000

Order—No. 482, Educational, dated 16th July 1906.

Recorded.

2. The Government have perused with pleasure the interesting report submitted by Mr. Thurston. Their thanks are due to all those who made donations to the Museum.

(True Extract.)

H. D. TAYLOR,
Ag. Secretary to Government.

9-23
Government of Madras.

EDUCATIONAL DEPARTMENT.

Recd.

} 1907.

Enclosures

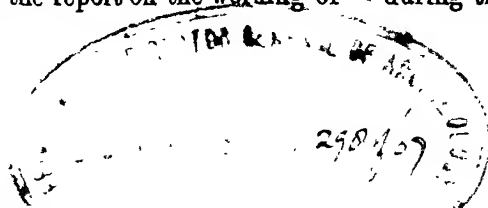
Regd.

Spare copies

G.O., No. 464, 19th July 1907.

Government Museum and the Connemara Library.

Recording, with remark, the report on the working of — during the year 1906-1907.



GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from E. THURSTON, Esq., Superintendent, Government Museum.

To—the Secretary to Government, Educational Department.

Dated—Madras, the 7th July 1907.

No.—421.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and Connemara Public Library during 1906–1907 and to request that I may be supplied with 160 copies for distribution to other Museums, etc.

ENCLOSURE.

ADMINISTRATION REPORT OF THE MADRAS GOVERNMENT
MUSEUM FOR THE YEAR 1906–1907.

VISITORS.—The total numbers of visitors to the old and new buildings were 334,493 and 301,207 against 390,130 and 351,683 in 1905–1906. The largest number of visitors on a single day was 29,775 to the old and 27,138 to the new building at the feast of Pongal. The total numbers of visitors on Sundays were 60,553 to the old, and 52,443 to the new building. The number of gosha females who visited the Museum on the monthly Saturdays set apart for them was 10,806.

The Museum was visited by Their Excellencies the Governor of Madras and the Governor-General of French India. Special arrangements were made for a visit by the ladies of the family of the Raja of Pittapur.

2. BUILDINGS.—An annexe to the existing marine gallery, and a new room for the exhibition of the prehistoric collection acquired from Mr. R. Bruce Foote were in course of construction. The Consulting Architect has been requested to prepare plans and estimates for annexes to the sculpture and economic galleries and a new clerk's office. The zinc roof of the theatre, which was in parts riddled with holes owing to some obscure chemical action, was replaced by a roof of corrugated iron.

3. THEATRE.—The theatre was used on fourteen occasions during the year as follows :—

Amateur dramatic entertainments	...	...	...	...	7
Collegiate School prize distribution and entertainment	...	...	...	...	2
Presidency Training School for Mistresses prize distribution	...	...	...	...	1
Madras Musical Association concert	...	...	...	...	1
Caledonian Society Burns concert	...	...	...	...	1
Teacher's Guild Conference	...	...	...	...	2

4. HISTORICAL.—The marble statue of Lord Cornwallis, which has suffered from long exposure to the open air in Fort St. George, was transferred to the Connemara Library, where it has been set up. Charles, first Marquis and second Earl Cornwallis, was born in 1738. In the American war of independence, he was obliged to capitulate at York Town, where the English force was surrounded and outnumbered by Washington. In 1782, when Cornwallis was still a prisoner on parole, he was asked to go to India as Governor-General and Commander-in-Chief, but refused the offer. He finally accepted the dual appointment in 1785. In 1792 he commanded at the siege of Seringapatam, which forced the surrender of Tippoo Sultan, who surrendered two of his sons as hostages, as a sign of his willingness to make peace. The reception of the two lads by Cornwallis is represented in the bas-relief of the statue. A treaty of peace was signed, by which Tippoo agreed to cede about half of his territories, as well as to pay a sum of £3,600,000. After his return to Calcutta,

Cornwallis occupied himself with various reforms, the most important of which was the promulgation of the Permanent Settlement of Bengal in 1793. In the same year he handed over the government to Sir John Shore and sailed for Madras in order to take command of the expedition against Pondicherry, which, however, had surrendered before he reached Madras. In 1805, at the age of sixty-six, he again went to India as Governor-General and Commander-in-Chief, in succession to the Marquess Wellesley. He landed there with the express intention of making peace with Scindia and Holkar, and started up the Ganges. Becoming, however, seriously ill, he was landed at Ghazipur, where he died on 5th October, 1805. The statue, by Thomas Banks, represents him in the robes of a Peer over military uniform. The sanction of Government has been obtained for the transfer to the Museum of the guns which were placed round the Cornwallis statue in the parade-ground of Fort St. George.

A number of original Persian documents from Thomas Saunders, Charles Bouchier, and George Pigot, Governors of Madras, Lord Clive, Sir Eyre Coote, Major Lawrence, and others were offered by His Highness the Rāja of Pudukkottai to the Government of India for the Victoria Memorial Hall, Calcutta. Of these documents, eighteen have been retained in Calcutta, and the remaining twenty-four have been forwarded to me for preservation in the Connemara Public Library. These consist of documents from Lord Clive, Lord Macartney and Pigot (as George Pigot, Esq., and Lord Pigot), Governors of Madras, Mr. Charles Smith, provisional Governor of Madras, Colonels Stuart, Brown, Fullerton, and Pears, Major Lawrence, and Lieutenants Clive and Smith. It may be recalled, as a matter of history, that Lord Pigot was arrested and conveyed to St. Thomas' Mount, when Governor of Madras, by order of the Members of Council.

A series of old coloured engravings, illustrating the uniforms of the Governor's Body-guard, Madras Horse Artillery, 32nd Regiment, Madras Infantry, and Madras Infantry band-master and musician, was acquired. A native sword, with V.O.C. (Vereinigste Ostindische Compagnie), 1760, engraved on the blade, was also acquired, as a relic of the Dutch East India Company. An excellent, and apparently accurate water-colour painting, in several sections, of Fort St. George and its environs about 1820, was mounted as a panorama at the College of Engineering, and exhibited in the Connemara Library. To Colonel H. D. Love, R.E., I am much indebted for the interest which he took in the preparation of this exhibit.

5. ANTHROPOLOGY.—My book entitled 'Ethnographic Notes in Southern India' was issued in July 1906, and the edition was nearly exhausted at the end of the year. I was, throughout the year, mainly occupied in writing the book on 'Castes and Tribes of Southern India', which will be issued in connection with the Ethnographic Survey. Many of the long articles were sent to the Government Press, and set up in type, but much still remains to be done before the book is ready for publication. A Bulletin, containing an account of the Tamil Paraiyans and the legend of Nandan by the Rev. A. C. Clayton, and a note on some agricultural ceremonies by Mr. C. Karunakara Menon was issued. A further Bulletin, containing an account of the worship of village deities (grāma dēvata) of the Southern India by the Bishop of Madras was going through the press.

A tour was made by myself in the Mysore Province, in the course of which anthropometric data relating to various Canarese castes were recorded. Mr. K. Rangachari paid a long visit to the Ganjam district, with a view to securing information concerning various Oriya castes inhabitants of the plains, about which very little information has been previously recorded.

In my last report I referred to a case in Malabar, in which death was said to have resulted from eating a vettilla poochi (betel insect), when chewing betel. In connection with this mysterious animal, Mr. H. Latham sent me from South Canara a description of a planarian worm. His camp-boy told him of a case in which death is said to have followed as the result of eating one of these animals cooked with jāk fruit. The skin of land planarians is undoubtedly full of minute rods or rhabdites, which are shot out in great numbers when these animals are irritated, and doubtless serve an offensive purpose. But it is not proved that a cooked planarian can cause death. A perichæte earth worm was forwarded from Malabar, with a note that, when it is accidentally chewed, the chief symptom is drawing in of the tongue, and consequent death from suffocation. The antidote is to drink salt and water, and the juice

of the leaves of the guava tree. It is recorded, in the Kērala Chintamani, that the betel snake "is a poisonous creature, which lives adhering to the betel leaf. Its presence cannot be easily detected, and many deaths occur among persons who are in the habit of carelessly chewing betel. The poison passes into the system through the moisture of the mouth, and death ensues within an hour and a half. Treatment: administer internally the juice of the leaves of a tree called arippēra. Make the patient suck the milk of the breast of a woman, whose baby is more than eighty days old."

A British Chaplain in Madras recently dismissed a servant for cheating and lying. A short time afterwards he found nailed to a teapoy a paper scroll containing a jasmine flower, tied up with coloured threads. On the scroll were inscribed in Tamil the mystic syllable Ōm, and Nāma Siva R U. Masthān Sāhibu Avergal pādama thunai, or "I seek for help at the feet of Masthān Sāhib" (a Muhammadan saint).

Among the additions to the ethnological section of the Museum, the following may be noted:—

A series of twenty-two clay figures of gods and goddesses, made by a potter in the Tanjore district, for an Aiyanar temple. Aiyanar is represented seated between his two wives, and, among other goddesses, are Mariamman, Kaliasman, Karuppai, Alathikari, and Pechiamman. The god Virabhadra is represented with eight arms, holding a long stick, spear, club, and hour-glass shaped hand-drum. Mathurai-vīran, who keeps watch over the village boundaries at night, is figured riding on a horse. The figures also include Sanyasi (an ascetic), the elephant god Vigneswara or Ganēsa, and Anjuthalai nāgam, the five-headed cobra.

Mr. N. Annandale has described (Asiat. Soc. Bengal, Miscellanea Ethnographica, 1, 1906) a type of blow-gun obtained by him in the Madura district. "The ornamentation," he writes, "of the weapon is characteristic, and shows that it must have been made in North Borneo. According to my Labbai (Muhammadan boatman) informants, the 'guns' are purchased by them in Singapore from Bugis traders and brought to India." Another type of blow-gun has been sent to me from the Madura district, consisting of a metal tube like a billiard-cue case, about 5' 4" in length, black japanned, and with unornamented brass rings and finials.

A series of articles from Malabar presented by Mr. A. R. L. Tottenham, which included—(a) para measure, box (cheppu), metal mirror (val kannadi), etc., used during Nayar marriages; (b) an hour-glass shaped drum used by Pānan sorcerers at certain ceremonies; (c) vengida koda, or prosperity umbrella, carried before the goddess at pūram festivals, and consisting of red, green, orange, black and white cotton fabrics supported on a long bamboo pole; (d) a stringed musical instrument called nandurini, played by Kāllata-kurups; (e) temple drum, called edakku, decorated with tassels.

Miniature bow and arrows, used by various castes in playing a game in Malabar.

Musical instrument played by Mādiga Asādis, and pot, bearing representations of the feet of deity, carried by Mādiga Mātangi women. These were secured when a Mādiga buffalo sacrifice was specially performed for me in the Mysore Province. The right foot of the decapitated animal was cut off and placed crosswise in its mouth in the manner described by Bishop Whitehead, and an earthen lamp, and some of the omentum removed through an incision with a knife in the abdominal wall, were placed on the top of its head. The Asādis went away abusing the other Mādigas, because, as it was a special entertainment for my benefit, and not a genuine religious ceremonial, they would not give them the carcasses as their perquisite.

Hindu and Christian tālis (marriage badges), both of which were worn by a Christian convert. The former bears the sign of the cross, and the latter phallic emblems, which are scarcely recognisable in their changed form into an artistic design.

Carved wooden kāvadis, which are carried by pilgrims to the shrine of the god Subrahmanya at Palni, to whom the kāvadi and money collected by begging on the way thither are offered in performance of a vow. Sometimes pots containing fish and milk are attached to the kāvadi, and it is believed that, as they are votive offerings, these do not go bad.

Silver charms made by Akasāles (goldsmiths) for members of various castes in the Mysore Province. Kurubas, and members of some other castes, keep in their houses silver or gold plates, whereon human figures are stamped. Sometimes they are worn by women, and are called in consequence *hithārada tāli*. The figures are supposed to represent persons who have died. Sometimes, similar plates are stamped with figures of Hanumān, Basava, Virabhadra, etc., and worshipped.

Mr. R. Bruce Foote was engaged in the selection of specimens from the pre-historic collection for the illustration of his catalogue *raisonné* thereof.

1. **ARCHÆOLOGY, ART.**—I received, from the Archæological Survey department, a large number of articles collected by Mr. A. Rea in the course of his tours at Amarāvati, in the Guntūr district, and Perambair in the Chingleput district, viz. :—

Amarāvati.—Celts, hammer-stones, grinding-stones, sandal-stones, pottery, beads, iron implements, etc.

Perambair.—Pottery, cists, chank-shell ornaments, human bones, iron implements, and a stone figure of Ganēsa.

Mr. Rea made renewed excavations at Amarāvati, from which place the celebrated Elliot marbles were obtained, and set apart a number of sculptures for consignment hereafter to the Madras Museum. A very interesting series of Jain sculptures was also sent by Mr. Rea from Danavulapadu in the Cuddapah district.

Specimens of iron-age pottery from Echur in the Chingleput district were received from the Rev. J. H. Maclean; pottery vases from Tumuli near the Tirukkoyilur railway station, South Arcot, from the Hon'ble Sir R. S. Benson; and pottery vessels from Mettupalaiyam in the Coimbatore district from Mr. E. W. Stoney. C.I.E.

Some fragments of pottery and human bones from the Cumbum and Markapur taluks of the Kurnool district were presented by Mr. T. E. Moir. These were found in connection with stone circles, which he describes as being often formed by boulders of milk-white quartz, which must, in some cases, have been brought from quite a long distance. Some of the circles enclose stone structures, which are oblong, made of slabs of slate rock set upright, with a slab roof. In connection with these dolmens, I may note, *en passant*, that there is a belief that the dolmens on the Nilgiris were constructed by a race of pygmies, assisted by hares and porcupines.

A stone, bearing the legend *Sēturāmanāther*, was received from the Executive Engineer, Negapatam division, Tanjore. Two stones bearing ancient Pāndyan inscriptions, which were built into the floor of the *Erichcha* Udaiyar temple at Ambāsamudram in the Tinnevely district, were received from Mr. V. Venkayya, Government Epigraphist, who also forwarded eight sets of copper plate grants from Nellore.

Under the Treasure Trove Act, a number of metal idols were acquired from the Tanjore and South Arcot districts. Some interesting metal figures of various village deities, and a metal figure of the boar (*Varaha*) avatar of Vishnu were obtained by purchase from my collecting agents. As in the previous year, very extensive additions were made to the art metal-ware collection. A cocoanut, excellently carved with a burlesque representation of the results of illicit distillation of liquor, was acquired.

7. **NUMISMATICS.**—In my last annual report, I recorded that a theft of silver filigree-ware occurred, and there was grave reason to believe that the theft was committed by some member of my staff, but no definite proof was forthcoming. It is with deep regret that I have to place on record a serious burglary, and the abstraction of a large number of coins, mostly gold, very many of which possessed great historic interest, and cannot be replaced. The burglary was rendered possible by the erection, without my knowledge, of a bamboo staircase for the work-people engaged in the construction of the annexe to the marine gallery. This rendered access to the upper storey of the museum old building, on which the room containing the coin-cases is situated, possible at night. The most severe loss is that of a large number of the splendid series of Roman Imperial solidi and denarii, which has gradually been brought together under the Treasure Trove Act or by purchase. The coins from the time of Claudius to that of Commodus, including those of Nero, Domitian, Hadrian, etc., have disappeared almost *in toto*, and the series is hopelessly crippled, though the coins of the earlier and later emperors remain. Other series, from which coins have been

removed, include the English East India Company, Moghul Emperors, Patān Kings of Delhi, Kalachuris of Mahākosala, Travancore, and Venetian sequins. The burglars are at large, and none of the coins have been recovered.

The following coins were acquired under the Treasure Trove Act:—

Five gold and seventeen silver coins of the Patān Sultāns of Delhi, from Parlākimedi in Ganjām ;

Six gold pagodas of the Vijayanagar dynasty, from Sirigeri in the Bellary district ;

Thirteen gold fanams of the Moghul Emperors Muhammad Shāh, Ahmad Shāh, and Ālamgir, from the Pullampet taluk, Cuddapah district.

The Museum was indebted to Mr. Lionel Vibert for two Venetian sequins (Aloy Mocen and Franc Laurel), and to Mr. A. Vieyra for the new eight cash or half chuekram of Travancore. A large number of lead Andhra coins were sent by Mr. A. Rea of the Archaeological Survey, from which a series of various types has been selected, to replace in some measure the coins which were reduced to powder by chemical action a few years ago (*vide* Annual Report, 1904-1905). A copper token, in imitation of the silver half and quarter pagoda of the East India Company, bearing on one side a mantapam, and on the other a figure of Vishnu, was acquired.

As I am repeatedly consulted in connection with the literature bearing on South Indian numismatics, I publish, in Appendix B, a bibliography of the coinage of South India and Ceylon. The publications therein referred to are all available for reference in the Connemara Library.

S. GEOLOGY AND MINERALOGY.—Some years ago, a collection of cretaceous fossils, made by Dr. H. Warth in the Trichinopoly district, was sent to Professor Waagen at Vienna to be worked out. An account of the Cephalopoda has been published by Dr. Franz Kossinat (*Untersuchungen über die Südindische Kreide-formation*), and the majority of the specimens were returned to the Museum in 1898. In the year under review, I received back from Dr. Kossinat the few remaining Cephalopoda (including the Belemnites), and the greater portion of the Gastropoda, Lamellibranchs, Brachiopods, Echinoderms, and Sharks' whorls.

To Messrs Best & Co. of Madras, the Museum was indebted for a large series of cores from borings made with a view to discovering coal in the Godāvāri and Chingleput districts. The boring in the former district was made at the village of Bedadavolu (Bedadanaru) in the Polavaram taluk, 23 miles north-west of Rajahmundry. The borings in the Chingleput district were undertaken at the villages of Vengathur and Periyakuppamare in the Tiruvallur taluk, about 16 miles from Arkōnam. A book containing a carefully maintained record of the borings was sent on loan to the Director, Geological Survey of India.

Among the additions to the mineral gallery may be noted:—

(a) A small collection of cretaceous fossils, including a portion of a very large Ammonite, from the Trichinopoly district, and a representative series of rocks and minerals from the Nellore mica mines, presented by Mr. W. E. Hoare.

(b) Manganese ores from the Sandūr State, and Dodgani in Mysore. The specimens from the former locality include the mineral manganite, which, Mr. L. L. Fermor writes (*Manganese in India*, 1906), "crystallises in orthorhombic prisms sometimes elongated to needle-like crystals as in the only undoubted occurrence of this mineral in India, namely a nodule obtained from the Sandūr hills."

(c) Corundum from Kadirur in the Kottayam taluk, Malabar.

(d) Sandstone conglomerate from Sathavedu in the Chingleput district. It is from this locality that the beautiful sandstone, now being used for the Victoria Memorial Hall, is obtained.

(e) A small fragment of rock from an isolated hill near Racherla, about 8 miles north of Giddalur in the Cumbum taluk, Kurnool district, was sent by Mr. T. E. Moir. This rock is described by Mr. R. Bruce Foote (*Mem. Geological Survey, India*) as syenite porphyry. Mr. T. H. Holland, Director, Geological Survey of India, however, writes that "this is an exceedingly interesting specimen. The rock contains a great abundance of one of the blue amphiboles, probably crocidolite, a mineral not previously found in India. The rock can be provisionally called crocidolite-schist."

9. NATURAL HISTORY.—The Aquarium building on the sea-shore was approaching completion at the end of the year, but various additions in the shape of cisterns, compressed air apparatus, etc., and alterations will have to be made and carried out before it is in full working order. The proposals of the Aquarium Committee with regard to the fees to be levied from visitors, hours of admission, and establishment to be entertained, received the sanction of Government. The establishment will include two keepers, two fishermen, and a fisherman's boy. It is proposed to purchase, for the fishermen, a catamaran with its equipment. Under the rules, the aquarium will, by previous arrangement, be open to students accompanied by their teacher for the purposes of demonstration, on payment of the usual fee, from 7 to 10 A.M., i.e., before the hour at which it is open to the public.

A series of skins and skulls of the palm squirrel, *Sciurus palmarum*, from various parts of the city of Madras, was sent to Mr. R. C. Wroughton, who writes as follows:—"I am trying to work out the forms and races of *Sciurus* (*Funambulus*) *palmarum*, excluding *F. tristriatus*, Waterhouse, which seems to be the "jungle" form. I believe I can distinguish two main distinct forms (spp.?) of *F. palmarum*, the "cultivation" form, (a) with three pale dorsal stripes only, and with rufous buttocks and a streak along the rachis of the tail below; (b) with five pale dorsal stripes, and without the rufous colouring. I want to find out the distribution of these two forms, and also whether the three dorsal stripes ever occur without the rufous on the tail, or the five stripes with it. (The outermost of the five stripes on each side are often very faint, but I think always discernible.) Unfortunately the Natural History Museum, S. Kensington, is very poor. There is a fine series of "a" from Travancore, but of "b" there are only two specimens from Sind, two from Rawalpindi and one from Guzerat." I shall be grateful to correspondents, who may be willing to supply me with information concerning the markings on the common squirrel of the plains.

Skins and skulls of *Pteropus medius*, the Indian fruit-bat or flying-fox, were sent to Mr. G. E. Mason in connection with a monograph which he is preparing on the geographical distribution and endemic features of the Pteropidae.

Among the additions to the Mammal and Bird gallery, the following may be noted:—

Skeleton of the nilgai or blue bull (*Boselaphus tragocamelus*).

Skull of the Indian gazelle (*Gazella bennetti*).

Skull and limbs of the Indian pangolin, showing the edentate jaws, and claws adapted for burrowing. This animal is popularly, and wrongly called the armadillo.

South Indian hedgehog (*Erinaceus micropus*) from the Trichinopoly district.

Common grey hornbill (*Lophoceros birostris*), shot near the Red Hills tank, a few miles from the city of Madras.

Albino crow (*Corvus splendens*) from Madras.

Black-crested baza (*Baza lophotes*), captured in the city of Madras. This bird, according to Blyth and Jerdon, occurs sparingly throughout India. A specimen was shot by Jerdon near Nellore.

Laggar falcon (*Falco jugger*) shot at Pulicat. Recorded, in the Fauna of British India, as "rare to the southward."

Indian tawny eagle (*Aquila hindiana*) shot at Poonámallee.

A series of domestic fowl's eggs, illustrating variation in form, size, and coloration.

A small collection of earthworms from the city of Madras was sent to the Indian Museum, Calcutta. I received in exchange the following South Indian lizards not previously represented here:—*Liolepis bellii*, *Lygosoma guentheri*, *Lygosoma dussumieri*, *Calotes ellioti*, *Calotes ophiomachus*, *Hemidactylus frenatus*, and *Gonatodes kandianus*.

A specimen of the burrowing Batrachian (*Uraeotyphlus oxyurus*?), with its eggs, from the Cochin State was presented by Mr. K. Ramunni Menon.

A colony of young hooded grasshoppers (*Teratodus monticollis*), protected by mimicry among the fruits of *Dodonaea viscosa*, was sent by Mr. A. N. Stuart from Gooty. This animal, Mr. Maxwell-Lefroy writes (Indian Insect Pests), "combines protection due to the hard sharp hood with cryptic and deceptive colouring."

Various species of rats and mice were received from the Plague department for identification.

10 CONNEMARA PUBLIC LIBRARY.—The construction of additional book-cases, to accommodate the University Library, was completed. It has been decided that the management of the University Library be vested in a Library Committee, consisting of five Fellows of the University, who are authorised, in consultation with the Principal Librarian of the Connemara Public Library, to purchase books and journals for the University Library, and to frame rules for the issue of books, and arrange for the general administration of the University Library. The money available for the purpose of purchases is Rs. 25,619 (invested in Government securities) being a bequest from the late Mr. William Griffith to the University, and an annual grant of Rs. 4,500 from the University.

The total number of readers during the year was 17,292 against 16,839 in 1905-1906—

Largest number of readers in a day	..	..	..	..	..	118
Smallest	..	..	..	..	..	17
Largest	..	on Sunday	..	..	..	160
Smallest	..	..	..	..	..	50

The number of standard works added to the library was 295, of which 219 were acquired by purchase and 76 presented.

I append a list of the books issued during the last two years under the various subject catalogue heads :—

	1905-1906.	1906-1907.
Anatomy; biology; natural history; zoology	1,061	703
Anthropology; folklore	311	499
Arts; industries	1,307	1,079
Atlases; maps	82	93
Belles lettres	1,714	1,252
Botany; arboriculture; horticulture	342	206
Chemistry; agriculture; photography	424	387
Classics	171	217
Dictionaries; encyclopædias; gazetteers; manuals	4,209	4,060
Economic products	98	130
Education; ethics; logic; philosophy; political economy	1,613	1,883
Exhibitions	67	57
Forestry; timbers	29	26
Geography: physical geography; physiography	90	177
Geology; palæontology	217	176
History	2,189	1,827
Jurisprudence	466	294
Medicine; surgery; pathology	348	336
Microscopy	51	40
Mineralogy; metallurgy	91	87
Natural philosophy	618	415
Numismatics; medals; heraldry	94	102
Philology; epigraphy	303	396
Photographs	26	51
Physiology	176	159
Public Health	127	96
Religion	924	789
Sport and games	375	361
Travels; voyages	726	602
Fort St. George Gazette (other than current issues)	1,222	1,037
Vernacular languages	133	149

The section of the library catalogue, which deals with books under authors' names, was going through the press. As soon as this is published, the issue of new editions of the subject indexes, for which the manuscript slips are ready, will be taken in hand.

11. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

APPENDIX A.

DONATIONS, 1906-1907.

Annandale, Dr. N.—

South Indian Lizards.

Liolepis bellii.*Lygosoma guentheri*.*Lygosoma dussumieri*.*Calotes elliotii*.*Calotes ophiomachus*.*Hemidactylus frenatus*.*Gonatodes kandianus*.

Asiatic Society of Bengal—

Thirteen silver coins of Alamgir II.

Ahmad Sháh and Muhammad Sháh.

Rupee of Ahmad Sháh, Katak Mint.

Two coins of Ahmad Shah, Katak Mint.

Three Gadhiya paisa of the 11th or 12th century A.D.

Two silver coins of Aurangzib

Silver coin of Nasir Sháh.

Silver coins of Mahmud II.

Two coins of Sháh Alam II.

Two coins of the independent Kings of Bengal.

Seven coins of Malwa struck by local rulers, or by the Moghul emperors.

Coin of Ghiasuddin Tughlaq.

Silver coin of Tajuddin Firoz Sháh.

Two gold coins of Akbar.

Barber, Mr. C. A.—

Python molurus.*Vipera russelli*.*Polyodontophis subpunctatus*.*Trimeresurus macrolepis*.

Bauker Ali, Mr. Hakim—

Albino Indian House Crow (*Corvus splendens*).

Benson, Hon'ble Sir R. S.—

Earthenware vases and lids from prehistoric tumuli near Tirukoylur railway station, South Arcot.

Bryant, Mr. J. F.—

Wild silk Moth (*Actias selene*).

Chester, Mr. R. W.—

Common Indian rat (*Mus rattus*)Brown rat (*Mus decumanus*).

Pied mouse.

Choudry, Mr. T.—

Magnetite from Digupudi, Bhodo Khemidy estate, Ganjam.

Coimbatore, South, District Forest Officer—

Fruits of *Grewia tilaefolia*.

Corporation, Madras—

Nilgai (*Boselaphus tragocamelus*).

Lioness.

Crowned pigeon.

Crocodile (*Crocodylus palustris*).

Davidson, Mr. L.—

Hindu and Christian talis, both of which were worn by a Christian convert female in Coorg.

Dique, Mr. A.—

Fish parasites, probably the encysted form of *Echinorhynchus*.

Gottlieb, Titus Sandhi—

Myriapod.

Government Epigraphist—

Two inscribed stones built into the floor of the first circuit of the Kricheha Udayar temple at Ambasamudram.

- Holley, Mr. W. H.—
Stick insect (*Phasmid*).
Pond tortoises (*Nicoria trifuga*).
- Holton, Rev. E. P.—
Chameleon (*Chameleon calcaratus*).
- Kulitalai, Range Officer—
Flowers of *Bauhinia tomentosa*, and fruits of *Capparis horrida*.
- Maclean, Rev. J. W.—
Iron-age pottery, and iron implement from about 8 miles from Walajabad, Chingleput district.
- Madura, District Forest Officer—
Pole of *Acacia planifrons*.
- Mannarghaut, Range Officer—
Timber and bark of *Schleichera trifuga*.
- Masulipatam, Port Officer—
Indian Pangolin (*Manis pentadactyla*).
- Menzies, Mr. R. T.—
Crocodile (*Crocodylus palustris*), young
- Minchall, Mr. J.—
Cobra (*Naja tripudians*).
- Nandyal, Joint Magistrate—
Dagger.
- Negapatam Division, Executive Engineer—
Stone with inscription, Sétu Ramanáthen.
- Padmanabhachariar, Mr. K.—
Indian pitta or yellow-breasted ground thrush (*Pitta brachyura*).
- Parthasarathy Nayudu, Mr. P.—
Abnormal coconut, with two fully developed kernels.
- Pinto, Mr. J.—
Eggs of rock snake (*Python molurus*).
- Ponnu & Co., Messrs. T. A.—
Token made in imitation of the Madras silver half and quarter pagodas of the English East India Company.
- Qadir Badsha Sahib Bahadur—
Chronogram in Urdu with translation in English, written in honour of the visit of Their Royal Highnesses The Prince and Princess of Wales to India.
- Ramakamath, Mr. C.—
Albino bandicoot rat (*Nesocia bandicota*).
Brown rat (*Mus acumanus*).
- Rea, Mr. A.—
Lead Andhra coins from Amaravati, Guntur district.
- Royal Asiatic Society, Bombay Branch—
Gold pagoda of Bijapur before the Muhammadan rule.
Silver Gadhiya coin.
Gold coin of Muhammad Sháh.
Gold coin of Alamgir II.
Gold coin of Sháh Alam II.
Moghul coins, silver. Aurangzib, Farrukh-Siyar, Sháh Alam Bahádur.
Two coins of Native States of India, one silver and one copper from Jamkhad, Ahmednagar district.
Silver Moghul coin, Aurangzib.
Silver Moghul coin, Sháh Jahán.
- Salem, North, District Forest Officer—
Acha gum.
Timber and bark of *Chickrassia tabularis*.
- Sandur, Diwan—
Manganite from Rámandrug, Sandur State.
- Smith, Mr. J. G.—
Caspian Tern (*Hydroprogne caspia*).
- Somasundram, Mr. T. C.—
Scorpions with young ones, alive.

Stoney, Mr. E. W.—

Prehistoric pottery from near Mettupollum.
Slag from Guduvancheri.

Thomas, Mr. E. F.—

Miniature bows and arrows used in a game in Malabar.

Tirupatur, Range Officer—

Wood of *Bridelia retusa*.

Tottenham, Mr. A. B. L.—

Ceremonial articles used in marriages, etc., in Malabar.

Trichinopoly, Tahsildar—

South Indian Hedgehog (*Erinaceus micropus*).

United Provinces, Government—

Moghul rupees from the Kheri and Mirzapur districts.

Silver coin from Mauza Miranpur, thana Mandawar, district Bijnor.

Coin from tahsil Sanehighat in the Bara Banki district.

Six coins from near Bhind, pargana Kunch, district Jalaun.

Nine coins from Mauza Kurwa, thana Deabaud, district Saharanpur.

Moghul coin from the Gorakhpur district.

Moghul coin from the Saharanpur district.

Four Moghul coins from Mauza Motipur, police station Lakhimpur, Kheri district.

Six Moghul coins from the Shahjahanpur district.

Two silver coins from Kota village, thana Kairwa, Mirzapur district.

Coin from Comilla, district Hill Tipperah, Eastern Bengal and Assam.

Moghul Akbar rupee from Banbirpur, police station, Mahmudabad, tahsil Sidhauili, district Sitapur.

Thirty-one copper coins, Sultans of Delhi from the site of the 'old Bhogaon post, Manipur district.

Weir, Hon'ble Mr. C. J.—

Mantis (*Gongylus gongylodes*).

Vasudevan, Mr. C.—

Betel insect (*Vettila pnochee*).

Vieyra, Mr. A. J.—

Travancore 8 cash or half chakrams.

Zaccheus, Mr. W. S.—

Lizard with bifurcated tail.

APPENDIX B.

BIBLIOGRAPHY.

COINAGE of Southern India and Ceylon.

- Andhrabhritya Kings of Southern India. Coins. [Journ. Bombay branch, Royal Asiat. Soc. XIII, 1877.] Codrington.
- British Empire. Coins and Tokens. Atkins.
- Ceylon. Ancient Coins and Measures. [Numismata Orientalia.] Davids.
- Ceylon Coins. Madras Museum. Catalogue. Thurston.
- Ceylon Coins and Tokens. Lowsley.
- Colonies Francaises. Histoire Monétaire. Zav.
- East India Company. Coinage. History and Catalogue. Madras Museum. Thurston.
- East India Company. Coinage, 1753-1853. [Journ. Asiat. Soc. Bengal, LXII, 1893.] Thurston.
- Hints to Coin Collectors in Southern India. Tufnell.
- Indes Néerlandaises. Numismatique. [Revue Belge de Numismatique, 1887.] Nahuys.
- India. Ancient Coins from the earliest times to the seventh century A. D. Cunningham.
- Indian Antiquities and Useful Tables. Prinsep.
- Indian Coins. [Grundriss der Indo-arischen Philologie und Altertumskunde.] Rapson.
- Indo-Danish Coins [Indian Antiquary, XXII, 1893.] Hultsch.
- [Madras Journ. Lit. and Science. 1888-89.] Rangachari and Desikachari.
- [Indian Antiquary, XXIV, 1895.] Rangachari and Desikachari.
- Indo-French and Indo-Dutch Coins. [Journ. Anthropol. Soc. Bombay, vol. II.] Symonds.
- Karnatik Nawábs. Coins. [Journ. Anthropol. Soc. Bombay, vol. II.] Symonds.
- Kupfermünzen, bekanntesten. Beschreibung. Neumann.
- Ma'abar. Some Unpublished Coins. [Indian Antiquary, XXXI, 1902.] Rangachari and Desikachari.
- Ma'bar. Coins of the Musulman Kings. [Journ. Asiat. Soc. Bengal, LXIV, 1895.] Rodgers.
- Madras Presidency. Copper Coinage. [Indian Antiquary, XXVIII, 1899.] Westcott.
- Moghul Emperors of Hindustan. Coins. Catalogue. British Museum. Lane-Poole.
- Münzen und Denkmünzen. Fonrobertsch: Sammlung. Weyl.
- Mysore Coins. Catalogue. Bangalore Museum. Tufnell.
- Mysore Coins. Catalogue. Madras Museum. Thurston.
- Mysore. Sketch of the Coinage. Hawkes.
- Nederland. Bezittingen en Kolonien Munten. Catalogus. Stephanik.
- Nederlandsch Indie. Munten. Netscher and Chijs.
- Oriental Coins, ancient and modern. Numismata Orientalia.] Marsden.
- Pagoda or Varaha Coins of Southern India. [Journ. Asiat. Soc. Bengal, LII, 1883.] Bidie.
- Pandyan Coins. [Madras Journ. Lit. and Science. 1887-88.] Tracy.
- Punch-marked Coins of Hindustan. Note on Symbols. [Journ. Asiat. Soc. Bengal, LIX, 1890.] Theobald.
- Rama Tunka. [Proc. Asiat. Soc. Bengal, XLIX, 1880.] Pearse.
- Ramtinkis. [Journ. Asiat. Soc. Bengal, LIII, 1884.] Gibbs.
- Roman Aurei found at Calicut. Caldwell.
- Roman Aurei from Pudukota. [Numismatic Chronicle, XVIII, 1898.] Hill.
- Roman Coins found in India. [Journ. Royal Asiat. Soc. 1900.] Sewell.
- Roman Coins found in Southern India. Madras Museum. Catalogue. Thurston.
- Sethupati Coins. [Madras Journ. Lit. and Science. 1889-94.] Tracy.
- South Indian Coins. Fanams. [Journ. Asiat. Soc. Bengal, LV, 1886.] Tufnell.
- South Indian Coins. Miscellaneous [Indian Antiquary, XXI, 1892, XXV, 1896.] Hultsch.
- Southern India. Coins [Numismata Orientalia] Elliot.
- Southern India. Some Doubtful Copper Coins. [Indian Antiquary, XXXII, 1903.] Sewell.
- Tinnevely Coins. Löventhal.
- Trankebar. Mönter, 1644-1845. Bergsoë.
- Travancore Coinage. [Madras Journ. Lit. and Science, 1889-94.] Mateer.
- Vijayanagara Kings. Coins. [Indian Antiquary, XX, 1891.] Hultsch.

APPENDIX C.

Classified list of Expenditure of the Government Museum during the year 1906-1907.

	Actuals, 1906-1907. RS.	Revised estimate, 1906-1907. RS.
Salaries—		
Superintendent	9,600	9,600
Exchange compensation allowance	600	600
Local allowance	2,400	2,400
Total ..	12,600	12,600
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer and 26 peons—33 persons	7,059	8,200
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, six watchmen, water pandal brahman, latrine sweeper, punkah-puller and chockra—16 persons	1,114	
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons— 6 persons	2,626	2,700
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person	46	
Temporary establishment, Government Museum—		
Four watchmen	63	..
Total establishment ..	10,968	10,900
Allowance—		
Travelling allowance	296	100
Supplies and services—		
Cost of specimens purchased on tour	359	..
Objects of interest and coin purchased at head- quarters	2,302	..
Fittings, furniture, etc., for the collection	1,610	..
Cost of books and publications	846	..
Library	2,091	..
Lithographic plates	504	..
Ammunition	15	..
Charges for feeding line animals	217	..
Expenses, Reading coin	2	..
Do. Measurement .. .. .	..	..
Total supplies and services ..	7,946	8,400
Contingencies—		
Purchase of furniture (Europe stores)	456	..
Tour charges	187	..
Freight, landing and shipping charges	5	..
Repairs to furniture	100	..
Cleaning charges	23	..
Postage do.	157	..
Telegraph do.	10	..
Telephone do.	180	..
Rents, rates and taxes	4,347	..
Office expenses including such articles as gum pots, rat traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes and match boxes	616	..
Total contingencies ..	6,081	5,000

							Actuals, 1906-1907.	Revised estimate, 1906-1907.
							RS.	RS.
Marine aquarium—								
Establishment—								
Head keeper, second keeper and seven servants—								
9 persons	..	..	..	..	..	..
Supplies and services—								
Food for animals	..	..	..	..	..	..
Contingencies—								
Lump provision	..	..	..	..	..	..
Grand total							37,891	38,000

Order—No. 464, Educational, dated 19th July 1907.

Recorded.

2. The report is, as usual, interesting. The thanks of Government are due to those who made donations to the Museum.

(True Extract.)

H. D. TAYLOR,
Ag. Secretary to Government

To the Superintendent, Government Museum.
 „ the Director of Public Instruction.
 „ the Accountant-General.
 „ the Public Department.
 „ the Revenue Department.
 „ the Director-General of Archaeology, with C.L.
 „ all Collectors of districts.

Editors' Table.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B., F.L.S., Acting Superintendent, Government Museum.

To—the Secretary to Government, Educational Department.

Dated—Madras, the 7th July 1909.

No.—341.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum and Connemara Public Library during 1908–1909, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

**Administration Report of the Madras Government Museum
for the year 1908–1909.**

Mr. Thurston, the permanent Superintendent, proceeded on leave on the 9th December 1908, and I had therefore charge of the museum during less than four months of the year under review. This report is largely compiled from notes furnished by Mr. Thurston.

2. VISITORS.—The total numbers of visitors to the old and new buildings were 529,663 and 521,720 against 579,770 and 532,476 in 1907–1908. The largest number of visitors on a single day to the old building was 63,506 on 3rd January (Dvadasi festival), and to the new building 87,921 on 15th January (Kannu Pongal). The total numbers of visitors on Sundays were 151,496 to the old and 138,106 to the new building, against 88,798 and 77,672, respectively, in the previous year; the excess in the year under review was due to the fact that Dvadasi festival fell on a Sunday. The number of Gosha females who visited the museum on the days set apart for them (the first Saturday in each month) was 13,269 against 15,639 in 1907–1908.

The museum was visited on 11th December by His Excellency the Right Hon'ble Lord Kitchener, Commander-in-Chief in India.

3. BUILDINGS.—The preliminary plans and estimates prepared by the Executive Engineer, Presidency Division, for the annexes to the sculpture and economic galleries and for the new clerks' office were forwarded to Government, but orders have not yet been issued for the preparation of detailed plans and estimates.

4. ESTABLISHMENT.—M.R.Ry. V. Govindan, B.A., after thirteen years of highly efficient service, resigned his appointment as Sub-Librarian and Personal Assistant on being appointed to the staff of the Department of Fisheries Investigation, and was succeeded by M.R.Ry. P. Ethirajulu Naidu, B.A., formerly in the Revenue Secretariat. M.R.Ry. K. Rangachari, M.A., L.T., after a service of twelve years, during which in addition to excellent work in the botanical and economic sections, he rendered valuable assistance to the permanent Superintendent in connection with his investigations in South Indian ethnology, vacated his appointment as Herbarium-keeper on transfer to the Educational Department. M.R.Ry. M. O. Parthasaradhi Aiyangar, B.A., has been appointed Herbarium-keeper on probation. A. Isayah, the senior taxidermist, died during the year.

5. THEATRE.—The theatre was used on ten occasions during the year as follows :—

Amateur Dramatic Society entertainments	6
Collegiate School, entertainment and prize distribution	2
Presidency Training School for Mistresses, prize distribution	1
Entertainment in aid of the Poor Fund, General Hospital	1

6. PUBLICATIONS.—The encyclopædic work on “The Castes and Tribes of Southern India” referred to in paragraph 5 of the last annual report, is passing rapidly through the press, and four volumes are now ready. It is hoped that the remaining volumes will be completed before the close of the current official year.

7. HISTORICAL.—An interesting addition to this section is an ivory cane with a silver ring inscribed “Mahé de la Bourdonnais.” Bertrand Francois Mahé de la Bourdonnais was the French General, who, in the war of 1743 between France and England, went to the succour of Dupleix at Pondicherry. He besieged the English at Madras and compelled them to capitulate in 1746.

Another noteworthy addition is a wooden measure of the time of the Danish King, Christian VII, with the monogram of the King C 7. It also carries a crescent, and the bale-mark of the English East India Company with the date 1852, seven years subsequent to the acquisition of Tranquebar by the Company. The crescent perhaps indicates the temporary suzerainty of the Nāwāb of Arcot, who subdued and imprisoned the Rāja of Tanjore, to whom Tranquebar had belonged.

8. ANTHROPOLOGY.—The new ethnological annexe, formed by enclosing a verandah in the new building, was arranged and opened during the year.

Among the additions to the ethnological section of the museum, the following may be noted :—

(1) A series of gold and silver votive offerings (*ex voto*) from the temple at Guruvāyūr, Malabar, consisting of gods, a baby in a cradle, tortoises, breasts, eyes, etc., added to the existing collection exhibited in the art gallery.

(2) Transparencies of devil-dancing in South Canara exhibited in a carved wooden stand in the art gallery.

(3) Wood carvings of the avatars of Vishnu.

(4) A series of painted wooden gods worshipped by sea-fishermen in Ganjām.

(5) A collection of jewelry and clothing worn by Gadabas and Bonda Porojas, presented by Mr. C. A. Henderson, I.C.S.

A set of anthropometric instruments was transferred to the museum from the Medical College with the sanction of Government.

9. ARCHÆOLOGY AND ART.—The golden casket with a fragment of bone and six golden flowers, referred to in the last annual report, was sent to the Collector of Guntūr on his requisition in connection with an enquiry under the Treasure Trove Act.

Eight copper-plate inscriptions were received from the Assistant Archæological Superintendent for Epigraphy, for deposit in the museum.

Among the additions to the archæological and art sections may be noted :—

(1) A large circular cup or trough of marble with a square hole at the bottom, bearing an inscription in Brāhmī character, which was found in front of a private residence in Garikopādu Agrahara, Sattanepalle taluk, Guntūr district (*vide* Progress Report of the Assistant Archæological Superintendent for Epigraphy, Southern Circle, for 1907–1908, part II, paragraph 8).

(2) Two Buddhist stone figures, one in a good state of preservation, from Melaiyur village, Nannilam taluk, Tanjore district.

(3) Two Jain stone figures from the village of Pedda Tumbalam, Adōni taluk, Bellary district. They appear to be Gautamas and are interesting specimens of statuary.

(4) Treasure trove deities from the villages of Tiruvarambur and Ulundungudi, Trichinopoly district.

(5) A copper god and goddess on a pedestal, from Tanjore.

(6) An extensive series of carved wooden beams, lintels, etc., acquired by purchase. This wood-work came from an old house, dismantled in the course of additions to the Madras Christian College, which house, according to tradition, was occupied by Count Lally during the siege of Madras by the French in 1758.

(7) An old hookah with elaborate metal work, said to have formerly belonged to one of the Nāwābs of the Carnatic.

(8) Two old paintings of the Nizam of Hyderabad and the Nāwāb of Cuddapah, with troops in procession. They are exhibited on the staircase of the new building.

(9) An ivory figure of Vallabha Ganesa made at the School of Arts, Trivandrum.

(10) A set of finely executed carved ivory chessmen made in Tirupati.

10. NUMISMATICS.—The following coins were acquired under the Treasure Trove Act:—

(1) Sixty-four gold coins from the Vizagapatam district. Sixty-three of these bear on the obverse a recumbent bull facing the proper left, accompanied by a trisula and a lamp stand; the reverse bears the Nagari letter *pa*, with a numeral below it, probably denoting the regnal year of the king by whom the coins were issued. The remaining coin bears on the obverse the numeral 14 with the Telugu letter *ja* above it; the reverse is not well preserved but the bull is certainly not present. The coins of the first series were attributed by Dr. Hultzsch to the Ganga dynasty of Kalinganagara, the modern Mukhalingam in the Ganjam district. The Ganga crest was a bull. Dr. Hultzsch assigned the coins to the Eastern Ganga king Ahantavarman Chôdaganga, who ascended the throne in A.D. 1078.

(2) Four hundred and thirty-six small copper coins with chequered reverse (early Mysore), and a gold fanam from the Coimbatore district.

(3) Nine hundred and ninety-one purāṇas, and a small gold jewel found in the village of Venbavur, Perambalur taluk, Trichinopoly district. These purāṇas are irregular pieces of silver, with Buddhist symbols punched on the surface. They represent the earliest Indian metallic currency, and finds often of considerable size, have occurred from time to time in various localities throughout the country.

(4) An elephant ("Gajapati") pagoda from the Tanjore district.

(5) Fifty copper coins from the South Arcot district.

(6) Nine pagodas ("poovarahans"), and fourteen gold fanams, from the South Arcot district.

(7) Twenty-one gold coins from the Cuddapah district, consisting of pagodas and fanams of well-known types.

(8) Seven hundred and eleven Andhra lead coins, found at Hakkalapalli, Anantapur taluk, Anantapur district. They belong to the well known "horse type", commonly met with in the Kistna and Gôdâvari deltas, and their occurrence in a new locality is of interest.

Sixty-eight copper coins and one gold coin, found in the Vizagapatam district, were received from Mr. A. Rea, Superintendent for Archæology, Southern Circle. M.R.Ry. V. Venkayya, Assistant Archæological Superintendent for Epigraphy, to whom they were submitted, attributes the copper coins to Vishnuvardhana, the first Eastern Chalukya king, who according to Dr. Fleet reigned from A.D. 615 to 633. Mr. Venkayya reports that the gold coin belongs to the reign of Samudragupta, the most powerful king of the Gupta dynasty of Magadha, and that its occurrence so far south is unusual. Samudragupta, who reigned from A.D. 326 to 375, claimed to have conquered Pithāpura in the Gôdâvari district, and to have extended his military operations as far south as Conjeeveram. The coin belongs to an unusual type, and is not referred to by Mr. V. A. Smith (*Catalogue of Coins in the Indian Museum*); it combines in one coin, the two types described by Mr. Smith, as the "Archer" and "Spearman" types.

Fifty-two copper coins of Muhammad Tughlak, found in the Bellary district, were presented by M.R.Ry. S. Venkoba Rao.

Twenty-three gold coins with Arabic inscriptions, coined at Aden, Alexandria, and Cairo, in the thirteenth and fourteenth centuries, which formed part of a large hoard found in the Tinnevely district in 1872, were purchased from Sir Arundel T. Arundel, K.C.S.I.

To the Eastern Bengal and Assam Government, the Central Provinces Government, the United Provinces Government, the Punjab Government, the Asiatic Society of Bengal, and the Bombay Branch of the Royal Asiatic Society, the Museum was indebted for many coins of Northern India.

11. NATURAL HISTORY.—Among the additions to this section, the following may be noted :—

An ant nest presented by the Hon'ble Dr. A. G. Bourne, C.I.E. About a dozen of the nests were found on a nim tree (*Melia azadirachta*) near Hampi, in the Bellary district. They were made of the green leaves of the tree joined together by a glutinous substance.

A new and large eagle-ray from Madras, *Ilicerobatis thurstoni*, described by Captain R. E. Lloyd, I.M.S., in the Records of the Indian Museum, Volume II, part 2, July 1908.

Limonibromus indicus, the Forest-Wagtail.

Glaucidium radiatum, the Jungle Owlet.

Hypothymis azurea, the Indian black-naped Flycatcher. This bird, taken in the outskirts of Madras, is new to the district.

Pictures of ducks from Baker's "Indian Ducks and their Allies", and of rats from Hossack's "Rats of Calcutta" (Memoirs of the Indian Museum), were framed and exhibited.

A collection of insects from various South Indian localities, sent for identification to the Agricultural Research Institute, Pusa, was returned with many of the species named.

A series of fresh-water sponges, collected in and around Madras, was sent to the Indian Museum, Calcutta, where the species were identified by Dr. Annandale.

The Marine Aquarium building was taken over from the Public Works Department on 3rd November, and since then the work has been mainly experimental. Unforeseen difficulties, mainly connected with the aeration of the water, have been experienced, but at the close of the year under review the tanks were stocked with fish and they appear to be thriving. The aquarium is probably the first of its kind to be erected in a tropical country, hence to many of the problems connected with its successful working, such as aeration, the selection of fish, etc., there exists no guide. With the approval of Government, Mr. James Hornell of the Department of Fisheries Investigation, was added to the Committee. The second-keeper was appointed in December. The Committee have decided to continue the experimental stage during the hot weather of 1909, and later in the year it is proposed to throw the aquarium open to the public.

12. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 18,663, against 17,679 in 1907-1908.

Largest number of readers in a day	..	..	..	..	..	173
Smallest	..	..	..	..	..	14
Largest	..	..	..	..	..	186
Smallest	..	..	..	..	..	49

The number of standard works added to the library was 263, of which 227 were acquired by purchase, and 36 presented. Among the latter is an English-Tamil Dictionary (without name of author) "printed and completely done at Vepery near Madras in the year 1786", transferred to the library from the office of the Collector of Górávari. The Collector, Mr. J. J. Cotton, in presenting the copy writes as follows :—"This particular dictionary I have never seen or heard of before,

though I have looked carefully through the Tamil books at the Indian Institute, Oxford, and elsewhere. The book is a rarity and is as interesting for the quaint English words found in it, as for anything else”.

The first supplement to Volume I. of the Catalogue (according to authors' names) was issued during the year under report.

I append a list of the books issued during the last two years, under the various subject catalogue heads:—

	1907-1908.	1908-1909.
Anatomy; biology; natural history; zoology	810	640
Anthropology; folklore	732	707
Archæology; architecture	506	218
Arts; industries	1,103	1,319
Atlases; maps	122	111
Belles lettres	1,847	3,200
Botany; arboriculture; horticulture	183	263
Chemistry; agriculture; photography	248	379
Classics	373	109
Dictionaries; encyclopædias; gazetteers; manuals ..	3,871	2,422
Economic products	195	104
Education; ethics; logic .. ..	..	1,397
Exhibitions	59	28
Forestry; timbers	48	62
Geography; physical geography; physiography ..	155	217
Geology .. ..	..	206
History	2,220	2,627
Jurisprudence	484	548
Medicine; surgery; pathology	379	335
Microscopy	65	33
Mineralogy; metallurgy	107	49
Natural philosophy	538	456
Numismatics; medals; heraldry	76	107
Philology; epigraphy	498	449
Photographs	35	229
Physiology	301	347
Public health	102	48
Religion	939	1,206
Sport and games	331	262
Travels; voyages .. ..	..	457
Vernacular languages	116	206
Fort St. George Gazette (other than current issues) ..	638	493

13. UNIVERSITY LIBRARY.—Messrs. Henry Sotheran & Co., London, have been appointed agents for the acquisition of books for this Library.

Books recommended by the following Boards of Studies were received during the year under review:—

English.
Sanskrit, etc.
Mathematics and Natural Philosophy.
Physical Science.
History.
Medicine.

A catalogue of books, relating to the subjects of History, Economics, Politics, and Sociology, which are available in the combined Connemara and University Libraries, has been published.

14. VALUABLE STOCK.—The necessary inventory was maintained, and duly checked.

APPENDIX A.

DONATIONS. 1908-1909.

Anantapur, Collector—

Seven hundred and eleven lead Andhra coins.

Asiatic Society of Bengal—

Six silver coins of the Græco-Bactrian king Apollodotus II Philopator, found in the Dehra Ghazi Khan district.

Nineteen copper coins of Bahlal Lodi and Sikandar Lodi, found in the Hissar district.

Five silver coins of Muhammad Shah, Ahmad Shah Bahadur, and Alamgir II, found in the Muzaffarpur district.

Two silver coins of Alamgir II, found in the Saran district.

A Buddhist coin or perhaps medal struck for deposit in stupas, found in the Yamethin district.

Two silver coins of the kings of Kashmir and of Babar, found in the Gujrat district.

Assistant Archæological Superintendent for Epigraphy—

Eight sets of copper plate inscriptions.

Bellary, Collector—

Two statues cut in black marble, found in the village of Pedda Tumbalam, Adóni taluk.

Central Provinces, Director of Agriculture—

Two silver coins of Shah Alam II, found in the Sagar district, Balanagar Garh mint, and Roshanagar Sagar mint.

Two silver coins. One Mohamad Shah, Surat mint; one Ahmad Shah Bahadur, Katak mint, found in the Bhandara district.

One copper coin. Hasan Shah, Haiderabad mint, found in the Hoshaugabad district.

Three silver coins. Moghul (Shah Alam), Benares mint, found in the Jubbulpore district.

Fourteen silver coins of Aurangzib, Bijapur mint (one), Sholapur mint (one), Surat mint (two).

Two gold coins of the Ganga dynasty of Kalinga, 1075-1146 A.D., found in the Raipur district, Central Provinces.

Central Provinces, First Assistant Agent to the Governor-General—

One copper coin, found at Kotar village, Raghurajnagar tahsil, Rewa.

Coimbatore South, District Forest-officer—

Fruit of *Lagerstræmia lanceolata*.

Corporation, Madras—

Leopard cub (*Felis pardus*).

Lion (*Felis leo*).

Black swan.

Cuddapah, Collector—

Twenty-one gold coins.

Cumming, Mr. A. R., I.C.S.—

Tasar silk moth (*Actias selene*).

Devarajulu, Mr. S. A.—

Tortoise.

Donovan, Major C., I.M.S.—

Bird (*Coccyzus coromandus*).

Eastern Bengal and Assam, Government—

Fifty-three silver Assamese coins, found in the Jorhat sub-division, Sibsagar district.

Govindan, Mr. V.—

Fisherman's hat from the Laccadive Islands.

Guntúr, Collector—

Marble cup with a Brâhmi inscription, from Garikopâdu Agrahara, Guntúr district.

Henderson, Mr. C. A., I.C.S.—

Collection of jewelry and clothing of Gadabas and Bonda Porojas.

Hosur, Sub-Collector—

Three lead beads or bullets, found in the hill fort of Jagadevi, Krishnagiri taluk.

Krishnasawmy Aiyangar, Mr. B. R.—

Twenty-seven copper coins.

Lahore, Central Museum, Curator—

Forty-five coins.

Lakshminarayan, Mr. P.—

Tortoise beetle.

Mervyn Smith, Mr. A.—

Magnetite (matrix of chrome ore) from Nunjungode, Mysore Province.

- Murray, Mr. J. J. F.—**
Two tortoises.
- Proprietor, Victoria Hotel, Madras—**
Snake (*Oligodon subgriseus*).
- Ramachandra Aiyar, Mr. A. V.—**
Cocoon of the tasar silk moth.
- Rea, Mr. A.—**
Sixty-eight copper Eastern Chalukya coins.
One lead Andhra coin.
Two small thin gold plates.
One gold Gupta coin.
- Royal Asiatic Society, Bombay Branch—**
Three silver coins of the Traikutaka king Dahragana, found in the Indapur taluk, Poona district.
One silver coin of the second Bahmiui king Muhammad Shah I. Ghazi, found in the Belgaum district.
Twelve silver coins of Aurangzib, found in the Ahmadnagar district.
One silver coin of Shah Jahan.
Eight silver coins of Aurangzib, found in the Nasik district.
One silver coin of the Peshwas, found in the Poona district.
One gold Sassanian coin, found in the Larkana district (Sind).
Two silver coins of Native States, found in the Belgaum district.
Three silver coins, one of Jehangir, one of Shah Jehan, and one of Aurangzib, found in the Poona district.
One gold coin of Muhammad Bin Taghlak.
One silver coin of Alauddin Muhammad Shah.
One silver coin of Aurangzib.
One silver coin of Farrukh Siyar.
One silver coin of Muhammad Shah, found in Mahim taluk, Thana district.
- Shillong, Curator Government Coin Cabinet—**
Three coins of Aurangzib, found in Dacca: Akbarnagar 42nd year, Jahangirnagar 44th year, Jahangirnagar 47th year.
- South Arcot, Collector—**
Fifty copper coins.
- Superintendent, Archæological Survey, Northern Circle—**
Five inscribed clay sealings, found in excavation on the ancient site of Kassia, Gorakhpur district.
- Tanjore, Collector—**
Two stone Buddhist images.
- United Provinces, Government—**
Three copper coins of Bhoja Deva, found in the Kheri district.
One coin found in the Kheri district (Shah Alam, Ahmadnagar Farrukhabad mint).
Three rupees of Muhammad Shah, Jahanabad mint, found in the Bahraich district.
One hundred Moghul coins of Akbar, etc., found in the Jhansi district.
Six coins of Lucknow, found in the Lucknow district.
Nine copper coins of the Patan Sultans of Delhi, found in the Jhansi district.
A gold mohur of Muhammad Bin Taghlak, found in the Muttra district.
Two coins, found in the Saharanpur district.
Four coins, found in the Shahjahanpur district.
Five coins, found in the Gonda district.
One coin, found in the Pilibhit district.
Twenty-eight silver coins, found in the Moradabad district.
One gold coin found in the Jhansi district.
- Venkoba Rao, Mr. S.—**
Fifty-two copper coins of Muhammad Taghlak, found in the foundation of a ruined house in Kudligi village, Bellary district.
- Wood, Mr. C. W.—**
An earthenware pot dug up at Sholinghur.

APPENDIX B.

CLASSIFIED list of Expenditure of the Government Museum during the year 1908-1909.

	Actuals, 1908-1909.	Revised estimate, 1908-1909.
	RS.	RS
Salaries—		
Superintendent	8,652	9,600
Exchange compensation allowance	465	600
Local allowance	1,858	2,400
Total ..	10,975	12,600
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer and 26 peons—33 persons	7,900	7,860
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, six watchmen, water pandal Brahman, latrine sweeper, punkah-puller and chockra—16 persons	588	750
Famine batta	500	..
Honoraria .. .. .	..	..
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons— 6 persons	2,295	1,930
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person	127	60
Famine batta	114	131
Bonus in commemoration of the fiftieth anniversary of the assumption of the Government of India by the Crown.	2	..
Temporary establishment .. .. .	..	..
Total, Establishment ..	11,844	10,731
Allowances—		
Travelling allowance	525	1,300
Supplies and Services—		
Cost of specimens purchased on tour	502	..
Objects of interest and coins purchased at head- quarters	911	..
Fittings, furniture, etc., for the collection	1,794	..
Cost of books and publications	893	..
Library	2,168	..
Lithographic plates	592	..
Ammunition	15	..
Charges for feeding live animals	203	..
Expenses—reading coins	6	..
Cost of illustrations for the carpet monograph	1,545	..
Total, Supplies and Services ..	8,629	8,600

	Actuals, 1908-1909.	Revised estimate, 1908-1909.
	RS.	RS.
Contingencies—		
Purchase of furniture (Europe stores) .. .. *	..	..
Tour charges	216	..
Repairs to furniture	99	..
Cleaning charges	11	..
Postage and telegraph charges	102	..
Telephone charges .. .. *	..	..
Rents, rates and taxes	4,473	..
Office expenses including such articles as gum pots, rat traps, mixture to prevent destruction of records, brooms, nails, firewood, umbrellas for peons, mats, chalk, food for cats, soap, vinegar, water-pots, ropes, and match boxes	621	..
Total, Contingencies ..	5,522	5,969
Marine Aquarium—		
Establishment—		
Second keeper and two servants—3 persons	67	..
Famine batta	14	..
Bonus of one week's pay	5	..
Supplies and Services—		
Food for animals	27	..
Contingencies—		
Tour charges	146	..
Office expenses	8	..
Miscellaneous	125	..
Total, Marine Aquarium ..	392	..
Grand Total ..	37,887	39,200

* Figures are not available.

Order—No. 492, Educational, dated 25th August 1909.

Recorded.

2. The thanks of Government are due to the persons who made donations to the Museum during the year.

(True Extract.)

W. FRANCIS,
Ag. Secretary to Government.

GOVERNMENT OF MADRAS.
EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B.C.M., F.L.S., Acting Superintendent,
Government Museum, Madras.

To—the Secretary to Government, Educational Department.

Dated—the 7th July 1910.

No.—426.

I have the honour to forward, for submission to His Excellency the Governor in Council, the report on the working of the Government Museum, the Marine Aquarium and the Connemara Public Library during the year 1909-1910, and to request that I may be supplied with 160 copies for distribution to other Museums, etc.

ENCLOSURE.

**Administration Report of the Madras Government Museum, etc.,
for 1909-1910.**

Mr. Thurston, the permanent Superintendent, continued to be on leave throughout the year. By G.O., No. 119, Educational, dated 12th March 1910, he has been permitted to retire from the public service with effect from the termination of his leave in July 1910.

2. VISITORS.—The total numbers of visitors to the old and new buildings were 413,726 and 387,077, against 529,663 and 521,720, respectively, in 1908-1909. While these numbers are quite up to the average of recent years they suffer by comparison with a year in which the numbers were exceptionally large. The largest number of visitors on a single day was 41,665 to the old and 28,057 to the new building, on 16th January (Kannu Pongal). The total numbers of visitors on Sundays were 112,318 to the old and 98,418 to the new building, against 151,496 and 138,106, respectively, in the previous year. The number of Gosha females who visited the Museum on the days set apart for them (the first Saturday in each month) was 14,098, against 13,269 in 1908-1909.

The Museum was visited during the year by Her Excellency Lady Lawley, the Lord Bishop of Southwark, Prince and Princess Louis d'Orléans and Princes Antoine d'Orléans and Germano de Bourbon.

A party of members of the Madras Teachers' Guild was personally conducted round the Museum by myself.

3. LECTURES.—A course of eight lectures on "the study of Indian animal life" was delivered during the Christmas holidays to teachers in European and Training Schools from various parts of the Presidency. The lectures were held in the old theatre of the Museum and were illustrated to a large extent by specimens from the Museum collections.

4. BUILDINGS.—The construction of the proposed annexes to the Sculpture and Economic galleries, and the new Clerks' Office, has been approved by the Government. The preparation of detailed plans and estimates is now engaging the attention of the Public Works Department, and it is hoped that the construction will be put in hand at as early a date as possible.

5. THEATRE.—The theatre was provided with an electric light installation connected with the Madras Electric Supply Corporation's main in the Pantheon Road, thus ensuring a great improvement in the lighting, and diminished risk to the building from fire. The theatre was used on thirteen occasions during the year as follows :—

Amateur Dramatic Society's entertainments	..	..	..	..	10
Collegiate School prize distribution	..	..	..	..	1
Presidency Training School for Mistresses prize distribution	..	..	..	..	1
Recital on behalf of the Civil Orphan Asylum	..	..	..	..	1

6. PUBLICATIONS.—Mr. Thurston's encyclopædic work on "The Castes and Tribes of Southern India" (in seven volumes) referred to in the last annual report was issued during the year.

7. HISTORICAL.—Two old cannon were received from the Central Jail at Trichinopoly. They are believed to have been taken from the French by the English troops, European and native, commanded by Major Stringer Lawrence, on the 21st September 1753, at the battle of the Sugar-loaf Rock, when the French troops under the command of M. Astruc were defeated with a loss of eleven guns. The rock so designated by Orme and other writers is now known locally as the Golden Rock, and the Central Jail is in its immediate vicinity. Both guns have lost their trunnions, one its muzzle, and the smaller one is spiked; both are flattened on one side, probably as the result of ryots sharpening tools on them. They bear no inscriptions, and are without any local history or tradition; but from the circumstances of their find, and from the fact that one of them is spiked, there can be little doubt that they are relics of this important engagement.

A photograph of Elihu Yale (Governor of Fort St. George, 1687-92) from the painting executed in 1717, now preserved at Yale College, was presented by Mr. Thurston.

A bronze sun-dial, marked S.S.G. 1817, connected with Ootacamund in its early days was presented by Sir Frederick Price, K.C.S.I. It was formerly placed in front of a house erected by Assistant Surgeon Glen of the Bombay Army about 1833, on the site of which Trengwainton now stands.

8. ARCHÆOLOGY AND ART.—The golden casket with a fragment of bone and six golden flowers, found at the Buddhist Stupa in Amarāvati and referred to in the last annual report as having been sent to the Collector of Guntūr in connection with proceedings taken under the Indian Treasure Trove Act, was returned during the year for deposit in the Museum.

Two copper plates produced by parties in a suit before the High Court, and not claimed by them, were forwarded to the Museum on the suggestion of the Assistant Archæological Superintendent for Epigraphy, Southern Circle. This officer reports as follows:—"The bigger of the two copper plates is dated in Saka 1662, Rudhirodgarin. The cyclic year given is wrong, according to Mr. Sewell's Indian Calendar. The plate records a gift of land made by certain private individuals to the Siva temple at Tirumalapadi, 'in accordance with a copper plate charter granted on a former occasion by Vijaya Oppilada Malavaraya'. Inscriptions copied by this department at Tirumalavadi (Nos. 70 to 99 of the Epigraphical collection for 1895) do not refer to any such person as Oppilada Malavaraya." While these copper-plates are of no historical importance they are interesting specimens of 18th century work.

A copper treasure chest of cast metal (measuring in inches $29 \times 16 \times 13$) found buried underground in the Tiruvalangadu temple, North Arcot district, was acquired under the Treasure Trove Act. It contained a number of jewels used for decorating idols, and is of considerable artistic merit, but unfortunately there is no indication of its age.

Treasure trove copper or bronze images were received during the year from the Buddhist Stupa at Amarāvati, and from the villages of Mandikulam in the Tinnevely district, and Koilpattu, Sikkil and Kanjanagaram in the Tanjore district.

9. ANTHROPOLOGY.—Among the additions to the ethnological section may be noted the following:—

(1) A model representing the procession of Bhadrakali at Trichur and other temples in the Cochin State. The deity is carried by the central one of three elephants, which are preceded by the bearers of the sacred lamps and by musicians.

(2) A brass plate received from the Collector of North Arcot. The Assistant Archæological Superintendent for Epigraphy, Southern Circle, has kindly furnished me with the following note on this plate:—"The brass plate in question is perhaps one of a series of forgeries compiled by the Idāṅgai-faction in its zeal to justify its preference over the Valāṅgai in matters social. The dates given, *viz.*, Sāka 1095 and Kali 4421 do not correspond. Nevertheless the story related of how the car procession of Kāmākshi-Amman at Conjeeveram was successfully managed by the Idāṅgai-Kammālans in spite of the obstacles thrown in its way by their opponents of

the Valaṅgai-section and how in this matter the Kambalattāns from Malabar helped the former by their ingenuity in exorcism, has its own interest to the ethnologist. In the Madras Manual of Administration (Vol III, p. 249) the Kambalattāns are described as 'a sub-division of the Vadoogar specially addicted to magic'."

(3) A representative collection of iron styles or *lekhanis* and of reeds used for writing purposes in the various districts of the Presidency. They were supplied by Collectors at the instance of the Board of Revenue who had already supplied a similar collection to the Reporter on Economic Products, India. It may be noted that a monograph on "Indian Pens: their history, classification, materials used and methods of manufacture" chiefly based on the latter collection, has been published in the Vegetable Product series of the *Agricultural Ledger* (No. 6 of 1908-09).

10. NUMISMATICS.—The following coins were acquired under the Indian Treasure Trove Act:—

(1) A Sultani pagoda of Tipu Sultan (struck at Nagar in the second year) and eighty-four gold fanams from Coorg. This find comprised a few of Tipu's fanams struck at Pattan, Nagar, and Kalikut, but the majority of the coins belong to an undescribed type of fanam bearing on the obverse a rudely executed standing figure of a God (Vishnu?) with symbols in his four hands, and on the reverse a standing figure (Garuda?) and a lamp. The dynasty by which these coins were issued is unknown.

(2) A find of silver coins from Malabar. It comprises forty-seven fanams struck at Pondicherry for use at Mahé and the French Settlements on the West Coast (obverse "Frans Kumpani," reverse "Bhulcheri" and the letter P) several of which bear complete dates, eleven East India Company one-fifth rupees struck at Bombay for use at Cannanore, and four dated fanams of an Ali Raja of Cannanore.

(3) A number of South Indian gold fanams from South Arcot. They bear on the obverse the so-called Kali symbol, while the reverse is plain.

(4) A number of coins struck by the East India Company and belonging to well-known types, from Cuddapah and Tanjore. They consist of "three swami" pagodas in gold, and of quarter pagodas, rupees, half rupees and quarter rupees in silver.

Two silver coins (denarii) which are of considerable interest inasmuch as they belong to types not previously represented in the Museum collection of Roman coins found in Southern India, were received from the Collector of Coimbatore. Both unfortunately are in a poor state of preservation. One is a coin of the Cassia family, and on the reverse under a device which is too worn to be made out, is the legend Q. CASSIVS (probably Quintus Cassius Longinus, B.C. 60); from the other the inscriptions have been entirely worn away, but the reverse shows a bull charging to the right, and the coin is probably one of Augustus (B.C. 29—A.D. 14). The two coins are said to have been found with some other silver and gold coins and jewels, in an earthenware pot, obtained in the course of digging and levelling the raised portions of a field in the village of Kallakinār in the Palladam taluk. They came to the Collector for disposal in connection with a criminal case on the file of one of his Sub-Magistrates. The police were unable to trace the other coins and jewels referred to.

Two copper coins obtained near Jaugada hill in the Ganjām district were presented to the Museum by the Assistant Superintendent for Epigraphy, Southern Circle. They bear on one side a rudely executed standing figure, with the left arm raised and the right arm hanging down; the other side exhibits a similar figure with a crescent to its left. These coins belong to the type figured by Mr. V. A. Smith in his *Catalogue of Coins in the Indian Museum, Calcutta*, plate XIV, No. 14, which he attributes to the kings of Kalinga (Puri and Ganjām) of the fourth or fifth century A.D.

The collection of coins struck by the Danes at Tranquebar received a large accession in the form of forty new varieties in silver, copper, and lead, which were acquired by purchase.

A report was drawn up for the Asiatic Society of Bengal on a find of one hundred and eighty-one gold pagodas of the Vijayanagar kingdom, from the Central Provinces.

To the Burma Government, the Eastern Bengal and Assam Government, the Central Provinces Government, the United Provinces Government, the Mysore, Darbar, and the Bombay Branch of the Royal Asiatic Society, the Museum was indebted for many coins presented to it in the course of the year.

The coins acquired under the Indian Treasure Trove Act during the year under report and in the previous year were distributed in accordance with the rules to regulate proceedings under the Act appended to G.O., No. 604, Public, dated 26th July 1907.

11. ECONOMIC AND BOTANICAL.—The Herbarium-keeper toured in the Tanjore, Madura and Tinnevely districts in September, and in Travancore in March, in order to collect specimens and to photograph objects of interest, more particularly growing plants of economic importance. As a result a considerable number of specimens and of photographs were added to the collection.

Samples of Para, Castilloa and Ceara rubbers, grown on the Nilgiris, were exhibited along with enlarged photographs showing rubber trees and the process of tapping.

A collection of varieties of sugar-cane from the Government Farm, Samalkota, and a series of vegetable specimens, chiefly medicinal, all of which are preserved in formalin solution, were exhibited during the year.

12. GEOLOGY AND MINERALOGY.—The chief additions made during the year to this section of the Museum were as follows:—

(1) Sand containing monazite from South Travancore. This mineral, a phosphate of the cerium metals, is of considerable commercial importance as a source of the ceria and thoria required for incandescent gas mantles.

(2) Samarskite from the Mica Mines, Nellore. A rare mineral, which in addition to iron, contains tantalum, niobium, cerium, yttrium and other rare elements. Its chief importance lies in the fact that it contains radium.

(3) Samples of plumbago, of good quality, from the zamindari of Singampatti, Tinnevely district.

13. NATURAL HISTORY.—In the course of a prolonged tour which I made to the Palni Hills extensive collections were made, particularly of insects, and a selection of the latter was sent to Pusa for identification. The Museum collection of South Indian butterflies has been rearranged during the year, and the specimens relabelled according to Lieut.-Col. Bingham's recent work; many old specimens have been replaced by fresh ones, and a considerable number added—chiefly from the Palnis—which were previously unrepresented.

Among the more important additions to this section may be noted:—

(a) Brown Palm-civet (*Paradoxurus jerdoni*), from the Palnis. According to Blanford who first described this little-known "toddy cat" it is "only known with certainty from the Palni hills in Madura and the Nilgiris". It was previously unrepresented in the collection.

(b) South Indian Hedgehog (*Eriaceus micropus*); a specimen captured alive in a compound at Egmore. Although the species has been recorded from the neighbourhood of Madras no recent record of its capture is known, and the one in question had possibly escaped from captivity.

(c) Little Scaly-bellied Green Wood-pecker (*Gecinus striolatus*), and Tickell's Golden-backed Wood-pecker (*Chrysocolaptes gutticristatus*) both from the Palnis, and both new to the collection.

(d) *Rhinophis travancoricus*, Boulenger. A specimen of this comparatively recent addition to the Indian snake fauna, hitherto only known from Travancore, was received from Cochin. Unlike the majority of earth-snakes it is found on the low country at no great distance from the sea.

(e) *Phrynichus phipsoni*, Pocock. A "scorpion-spider" previously only known from Bombay, Travancore, and the Shevaroyes, received from Vizianagram.

(f) *Rhugodes nigrocinctus*, Bernard. A rare arachnid received from Vellore, the only known locality for the species.

14. MARINE AQUARIUM.—In the last annual report it was stated: "The Marine Aquarium building was taken over from the Public Works Department on 3rd November, and since then the work has been mainly experimental. Unforeseen difficulties, mainly concerned with the æration of the water, have been experienced,

but at the close of the year under review the tanks were stocked with fish and they appear to be thriving The Committee have decided to continue the experimental stage during the hot weather of 1909, and later in the year it is proposed to throw the Aquarium open to the public." The Aquarium was eventually opened on 21st October, and the novelty of the display has continued to attract large numbers of visitors. A draughtsman has been employed to make coloured sketches of the fish, and these duly labelled with the scientific and Tamil names of the various species will be exhibited over the tanks. A small guide book will also be issued.

Except on Fridays when the Aquarium is closed to the public, the hours of admission under G.O., No. 556, Educational, dated 22nd August 1906, were from 7 A.M. to 6 P.M. on Wednesdays, and from 10 A.M. to 6 P.M. on all other days except Sunday, when visitors were not admitted after 5 P.M. The last Monday of each month, from 12 noon to 6 P.M., was set apart for gosha ladies. In order to prevent overcrowding in such a small place, the Government considered that a charge should be levied from visitors, and fixed the following rates:—four annas on Wednesdays, and six pies on all other days.

The number of visitors from 21st October 1909 to 31st March 1910, was 100,463, and the amount realized in admission fees was Rs. 3,330-4-6. The largest number of visitors on a single day was 3,436 on 16th January (Kannu Pongal). The total numbers of visitors on Wednesdays, and the days set apart for gosha ladies, were 832 and 2,182 respectively.

The Aquarium was visited by His Excellency the Governor, and by Her Excellency Lady Minto.

A short account of the Aquarium which appeared in "Nature" will be found in Appendix B.

15. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 19,204, against 18,663 in 1908-1909.

Largest number of readers in a day	..	..	..	..	..	176
Smallest	"	"	"	"	"	15
Largest	"	on Sunday	..	..	..	171
Smallest	"	"	..	..	..	58

The number of standard works added to the library was 306, of which 257 were purchased and the rest presented. Among the latter is a cop of the original edition, published in 1812, of the celebrated "Fifth Report on the Affairs of the East India Company," presented by Sir Frederick Price, K.C.S.I., and believed to have formerly belonged to Sir Thomas Munro. A scarce little book acquired by purchase bears the quaint title "An Essay upon Friendship; Deliver'd with a View to an Unhappy Gentleman, dec^d, and a Monster just strip'd of Power, which he has abus'd, and is lately return'd to England. By a Faithful Servant and Soldier of his Majesty's. London: Printed in the Year MDCCXXV." The unhappy gentleman referred to was Francis Hastings, Governor of Fort St. George, 1720-21, who dismissed by the Company, died in Madras while under arrest on 15th December 1721. The "monster" was Nathaniel Elwick, Governor of Fort St. George, 1721-25, who is said to have compassed the ruin of Hastings.

On the recommendation of the Board of Scientific Advice, the Government, by G.O., No. 61, Educational, dated 3rd February 1910, directed the supply to the library of certain additional scientific periodicals.

A statement of the number of books issued to readers during the last two years, under the various subject catalogue heads, is subjoined:—

	1908-1909.	1909-1910
Anatomy; biology; natural history; zoology	.. .. 640	715
Anthropology; folklore	.. .. 707	462
Archæology; architecture	.. .. 218	193
Arts; industries	.. .. 1,319	1,321
Atlases; maps	.. .. 111	103
Belles lettres	.. .. 3,200	4,418
Botany; arboriculture; horticulture	.. .. 263	229
Chemistry; agriculture; photography	.. .. 379	383
Classics	.. .. 109	135
Dictionaries; encyclopædias; gazetteers; manuals	.. .. 2,422	4,988
Economic products	.. .. 104	69
Education; ethics; logic	.. .. 1,397	776

	1908-1909.	1909-1910.
Exhibitions	28	35
Forestry; timbers	62	37
Geography; physical geography; physiography	217	170
Geology	206	87
History	2,627	2,803
Jurisprudence	548	452
Medicine; surgery; pathology	335	316
Microscopy	33	26
Mineralogy; metallurgy	49	141
Natural philosophy	456	685
Numismatics; medals; heraldry	107	81
Philology; epigraphy	449	1,517
Photographs	229	101
Physiology	347	174
Public health	48	117
Religion	1,206	793
Sport and games	262	316
Travels; voyages	457	212
Vernacular languages	206	119
Fort St. George Gazette (other than current issues)	493	503

16. UNIVERSITY LIBRARY.—Books recommended by the following Boards of Studies were received during the year under review :—

Arabic.	Mental and Moral Science.
Dravidian languages.	Natural Science.
Law.	Teaching.

The several Boards of Studies were requested to send in supplemental lists of books to be acquired, and such of them as had been received were either under consideration or order.

Manuscript slips for a catalogue (arranged according to authors' names) of the books in the University library were under preparation; and the preparation of subject indexes of the books available in the combined Connemara and University libraries engaged the attention of the University Library Committee and the several Boards of Studies. The catalogue and the subject indexes will be issued with the least practicable delay.

17. VALUABLE STOCK.—The necessary inventory was maintained, and duly checked.

18. The usual list of donations and statement of expenditure are appended.

APPENDIX A.

DONATIONS, 1909-1910.

Anantapur, Collector—

Two pieces of a stone treasure receptacle found in Velamakur village, Tadpatri taluk.

Assistant Archæological Superintendent for Epigraphy, Southern Circle—

Two copper coins from Jaugada.

Atkinson, Hon'ble Mr. J. N., I.C.S., c.s.i.—

South Indian Hedgehog (*Erinaceus micropus*).

Bellary, District Forest Officer—

Wood and bark of *Ehretia laevis*.

Benson, Surgeon-General, P. H.—

Miscellaneous copper coins.

Board of Revenue, Madras—

Writing styles and reed pens.

Central Provinces, Director of Agriculture—

Forty-one copper coins of Muhammad Shah.

Three copper coins of Muhammad Shah.

Seven silver coins and one copper coin found in the Hoshangabad district.

Cherry, Mr. C. G.—

Sea snake (*Enhydryna valakadya*).

Conservator of Forests, Southern Circle—

Derris scandens—fibre and bark.

Flacourtia ramontchi—fruit.

Corporation, Madras—

Leopard (*Felis pardus*).

Indian Chevrotain or Mouse deer (*Tragulus meminna*).

Black swan (*Cygnus atratus*).

Eastern Bengal and Assam Government—

Four silver coins found in the Lakhimpur district.

Entomologist, Imperial, Agricultural Research Institute, Pusa—

Coloured plates of insect pests together with printed explanation of the plates.

Fraser, Mr. Gordon—

Snake (*Oligodon subgriseus*).

Govindan, Mr. V.—

Live turtle (*Chelone mydas*) from Ennore.

High Court of Judicature, Madras, Registrar—

Two copper plates.

Holman, Mr. D.—

Coffer fish (*Ostracion turritus*).

Johnston, Mr. R. H. A.—

Snake (*Callophis trimaculatus*) from Trichinopoly.

Johnston, Mr. W. H.—

Scorpion-spider (*Phrynichus phipsoni*) from Vizianagram.

Masilamony, Mr. J. S.—

Living Mottled Wood Owl (*Syrnium ocellatum*).

Matthai, Mr. George.—

Snake (*Rhinophis travancoricus*) from Cochin.

Montgomery, Mr. W. D.—

Flying lizard (*Draco dusumierii*) from the Cardamom Hills, Travancore.

Mysore Darbar—

Three gold Vijayanagar coins.

Nellore, Collector—

Samarskite, from the Mica Mines.

Nicholson, Rev. S.—

Two Andhra lead coins from Koilkuntla taluk, Cuddapah district.

North Arcot, Collector—

Brass plate.

Oakes, Major G. R., I.A.—

Viper (*Lachesis macrolepis*) from Kodaikānal.

Oliver, Mr. N. R. B.—

Snake (*Tropidonotus piscator*).

Price, Sir Frederick, K.C.S.I.—

Old sun dial from Ootacamund.

Ratnavelu, Mr. B. S.—

Arachnid (*Rhagodes nigrocinctus*, Bernard) found at Vellore.

Royal Asiatic Society, Bombay Branch—

Two silver coins of Native States, with fragments of legends of later Moghul Emperors, found in the Satara district.

One coin of Muhammad Shah found at Korphal, Barsi taluka.

Three silver coins of Moghul Emperors :—

One of Aurangzib, one of Muhammad Shah, and one of Alamgir, found in Man taluka, Satara district.

Two gold coins of the Vijayanagar dynasty of Southern India, found in Barsi taluka, Sholapur.

Three silver coins of Native States.

Two East India Company's Rupees found at Alwal, Sindgi taluka, Bijapur district.

Four gold coins found in the Satara district.

Four silver coins of Mahmud III.—Gujarat Saltanah.

Shutie, Mr. S. D.—

Russell's Viper (*Vipera russellii*).

Singampatti, Zamindar of—

Plumbago samples.

Spencer, Mr. H. M.

Caterpillar.

Stone, Mr. J. H.—

Model of the procession of Bhadrakali at Trichur and other temples in the Cochin State.

Superintendent, Archæological Survey, Burma—

Two ancient Arakanese silver coins.

Superintendent, Central Jail, Trichinopoly—

Stone specimen (block of gneiss).

Superintendent, District Jail, Berhampore—

Burmese bell.

Thurston, Mr. Edgar, C.I.E.

Photograph of Elihu Yale from a painting.

United Provinces, Government—

Seven silver coins found in the Rai Barili district.

Three silver coins found in the Bara Banki district.

Two silver coins found in the Rai Barili district.

von Schomburg, Mr. C. W.

Monazite sand from South Travancore.

Waddington, Mr. H.—

Quarter paisa of Tipu Sultan struck at Khaliqabad (Dindigal).

APPENDIX B.

THE MARINE AQUARIUM, MADRAS.

Extract from "Nature" dated 3rd February 1910.

The Marine Aquarium at Madras, which has recently been thrown open to the public, deserves notice as it is the first institution of its kind in India, if, indeed, it is not the first in the tropics. It owes its inception to Lord Ampthill, who, while Governor of Madras some four years ago, drew up in conjunction with Mr. Edgar Thurston, Superintendent of the Madras Museum, the first rough plan of a public aquarium. The building, a low, unpretentious brick edifice, is situated on the seaward side of the famed Madras Marina, less than a hundred yards from the sea. The main entrance leads into a large paved area with a central fresh-water pond and fountain, and on either side five tanks with plate-glass fronts, lit from above, each measuring $7 \times 3 \times 3\frac{1}{2}$ feet. The entire seaward side of the central area is occupied by a large open tank at present stocked with turtles (*Chelone mydas*). On either side of the entrance passage are two rooms designed for committee meetings, storage of materials, etc., and one of them is occupied at present by the aeration plant.

With the exception of two tanks for fresh-water fish (at present containing species of *Megalops*, *Ophiocephalus*, *Notopterus*, etc.) which are oxygenated by living *Vallisneria*, the remaining eight contain salt water, which circulates from tank to tank, and in addition are supplied with air from two compression cylinders, forced into each tank through a filter candle. At present the cylinders are filled by hand pumps, but the use of an oil engine is contemplated. Sea water is conveyed to a covered well in the rear of the aquarium along a pipe filled by hand at the seaward end. From the well it is pumped into filter-beds, and from these passes to large elevated cisterns, whence it is distributed to the tanks. The shore water on the Madras coast is so disturbed by the surf that this filtration is unavoidable, though the removal thereby of small organisms is undoubtedly a drawback. The water which has circulated through the aquarium tanks can, if desired, be brought back to the filter-beds and used a second time.

The Director of the Aquarium is the Superintendent of the Madras Museum, and he is assisted by a local committee. A small admission fee is charged, and already there are signs of the place becoming very popular, more than 1,100 visitors having been admitted on a single day. The magnificent colours of many of the fish, in particular, form a most attractive display. The exhibits include sea-snakes (*Enhydrina* and species of *Distira*) and among the fish species of the following:—*Ginglymostoma*, *Stegostoma*, *Chiloscyllium*, *Muraena*, *Arius*, *Therapon*, *Serranus*, *Lutjanus*, *Myripristis*, *Trachynotus*, *Pterois*, *Caranx*, *Antennarius*, *Heniochus*, *Julis*, *Teuthis*, *Balistes*, *Tetrodon*. The invertebrates comprise cuttle-fish, holothurians, hermit-crabs (*Chibanarius*), swimming crabs (*Scylla* and *Neptunus*), lobsters (*Panulirus*), prawns (*Penæus*), etc. All the specimens have been taken on the Madras coast within a few miles of the Aquarium.

APPENDIX C.

CLASSIFIED list of expenditure of the Government Museum, Connemara Library, and Marine Aquarium, during the year 1909-1910.

Government Museum and Connemara Library.

	Actuals, 1909-1910.	Revised estimate, 1909-1910.
	RS.	RS.
Salaries—		
Superintendent	5,400	5,737
Exchange compensation allowance .. .. .	..	48
Local allowance .. .. .	..	193
Total ..	5,400	5,978
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, senior and second taxidermists, writer, assistant writer and 26 peons—33 persons	7,856	7,857
Permanent non-pensionable establishment, Government Museum—		
Three gardeners, three sweepers, six watchmen, water pandal Brahman, latrine sweeper, punkah-puller and chockra—16 persons	894	900
Famine batta		
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons— 6 persons	2,106	2,090
Permanent non-pensionable establishment, Connemara Public Library—		
Servant (sweeper)—1 person	144	135
Famine batta		
Total, Establishment ..	11,000	10,982
Allowances—		
Travelling allowance	772	900
Supplies and Services—		
Cost of specimens purchased on tour	357	..
Objects of interest and coins purchased at head- quarters	717	6,740
Fittings, furniture, etc., for the collection	1,359	
Cost of books and publications	889	
Library	2,402	
Lithographic plates	15	
Ammunition	149	
Charges for feeding live animals	224	
Expenses—reading coins	3	
Total, Supplies and Services ..	6,115	6,740
Contingencies—		
Purchase and repair of furniture	108	6,000
Tour charges	169	
Cleaning charges	22	
Postage and telegraph charges	91	
Telephone charges .. .. .	..
Rents, rates and taxes	4,473	
Office expenses	587	
Freight	5	
Total, Contingencies ..	5,455	6,000

Marine Aquarium.

	Actuals, 1909-1910.	Revised estimate, 1909-1910.
	RS.	RS.
Permanent establishment, Marine Aquarium—		
Head-keeper, second keeper and two door-keepers—4 persons	281	615
Permanent non-pensionable establishment, Marine Aquarium—		
Night watchman, sweeper, two fishermen and fisher-boy—5 persons	330	
Temporary establishment	150	
Famine batta	130	130
Total, Establishment ..	891	745
Supplies and Services—		
Food for animals	648	* 655
Total, Supplies and Services ..	648	655
Contingencies—		
Fittings	501	1,000
Tour charges	349	
Postage and Telegraph charges .. .. .	..
Office expenses	44	
Miscellaneous	15	
Rents, rates and taxes	294	
Purchase and repairs of furniture	23	
Total, Contingencies ..	1,226	1,000
Total, Marine Aquarium ..	2,765	2,400
Grand Total ..	31,507	33,000

* This includes fittings also.

Order—No. 423, Educational, dated 20th July 1910.

Recorded.

2. The thanks of Government are due to the persons who made donations to the Museum during the year.

3. The Governor in Council takes this opportunity to place on record his high appreciation of the services of Mr. Edgar Thurston who for the past 25 years has filled the post of Superintendent of the Museum with marked distinction and success.

(True Extract.)

L. M. WYNCH,
Ag. Secretary to Government.

To the Superintendent, Government Museum.
 „ the Director of Public Instruction.
 „ the Accountant-General.
 „ the Public Department.
 „ the Revenue Department.
 „ the Public Works Department, with reference to paragraph 4 of the report.
 „ the Director-General of Archæology (with C.L.).
 „ Mr. E. Thurston.
 Editors' Table.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B.C.M., F.L.S., Superintendent, Government Museum.

To—the Secretary to Government, Educational Department.

Dated—Madras, the 7th July 1911.

No.—490.

I have the honour, to forward for submission to His Excellency the Governor in Council, the report on the working of the Government Museum, the Marine Aquarium and the Connemara Public Library during the year 1910–1911, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

Administration Report of the Madras Government Museum, etc.,
for 1910–1911.

Mr. Thurston continued on leave till his retirement from the public service on the 14th July 1910. When he first assumed charge in October 1885, the Government Museum consisted of what is now known as the Old Building and the collections were not confined to Indian exhibits. Mr. Thurston in his first annual report defined the present policy of the Museum in a sentence which I may be permitted to quote : “ It is wholly beyond the power or scope of a presidential museum to rival the great national museums in the possession of representative collections from different quarters of the globe, and I have determined to devote my entire attention to the natural history, arts, ethnology, manufactures and raw products of Southern India, accepting only such specimens from other regions as may be sent as donations from time to time, and keeping them entirely apart from the main collections.” During his period of administration the Museum has undergone great development in every direction, and in particular the addition of the Connemara Public Library and the New Building in 1896, has greatly increased both the size and the scope of the institution. To his enthusiasm and discrimination the extent and the arrangement of the collections are due ; in his writings, more particularly those relating to anthropology and numismatics, he has left an enduring record of his work.

I continued to act as Superintendent and Principal Librarian throughout the year.

2. VISITORS.—The numbers during the year under review, as well as for the preceding year, were as follows :—

	1909–1910.	1910–1911.
Total number of visitors to the Old Building ..	413,726	444,837
Total number of visitors to the New Building ..	387,077	437,984
Largest number of visitors on a single day to the Old Building ..	41,665	77,723
Largest number of visitors on a single day to the New Building ..	28,057	79,084
Total number of visitors on Sundays to the Old Building ..	112,318	68,368
Total number of visitors on Sundays to the New Building ..	98,418	64,228
Total number of gosha female visitors (on the first Saturday in each month) ..	14,098	12,356

As usual Kattu Pongal (16th January) was the day on which the Museum was attended by the largest number of visitors. The apparent fall in the number of visitors on Sundays is accounted for by the fact that in 1910 Kattu Pongal fell on a Sunday.

3. **BUILDINGS.**—Detailed plans and estimates for extending the Sculpture and Economic Galleries and for building a new clerks' office have been submitted for the approval of Government. A considerable number of archæological specimens received during recent years are stored away for want of space in which to exhibit them.

4. **THEATRE.**—The Theatre was used on sixteen occasions during the year as follows:—

Amateur Dramatic Society's entertainments	..	..	..	..	9
Madras Musical Association's concerts	..	..	..	..	3
Lieut.-Col. vanGeyzel's concert in aid of the Gericke Hostel	..	..	..	..	1
Collegiate School prize distribution	..	..	..	..	1
Doveton Girls' School prize distribution	..	..	..	..	1
S.P.G. High School prize distribution	..	..	..	..	1

5. **ESTABLISHMENT.**—I record with regret the deaths which occurred during the year of the Second Assistant, A. B. Vijayaraghava Mudaliyar, and the junior taxidermist, P. Krishnan, after a service of twenty-five and nine years respectively.

6. **HISTORICAL.**—I am indebted to the Hon'ble Mr. H. E. Clerk for a plan of Madras at the time of its capture by the French under Mahé de la Bourdonnais on 21st September 1746, which he had received from Mr. Bligh, retired Executive Engineer, Public Works Department, now at Toronto, Canada. The plan, which has been framed and exhibited in the Connemara Public Library, is undated, but was engraved for the "Universal Magazine" probably not long after the date referred to. It shows that the course of the Cooum was very different in those days, and in other respects is a document of considerable local interest.

7. **ARCHÆOLOGY AND ART.**—Among the more noteworthy additions to this section are the following:—

(1) A number of stone images found in a fragmentary condition near a ruined Jain temple at Sultan's Battery in the Wynaad taluk, Malabar district. The present condition of the images is probably a result of the religious zeal of Tipu Sultan and unfortunately many of the fragments are missing. The following information regarding the temple is furnished in the District Gazetteer 1908):—"Hidden in a "lantana thicket a few yards south of the 60th mile stone on the Mysore road, its "very existence has been forgotten for many years. The upper part has fallen down, "and the rest is fast falling into ruin, several trees having forced their way between "the great granite slabs of which it is built. There are no Jains now in Sultan's "Battery, but there are small colonies of them at Manantoddy, Kalpatta and other "places."

(2) Eight gold-plated sheets of copper with figures in high relief of Siva, Parvati and other personages of Hindu mythology, from the Srīsailam temple in the Nandikotkūr taluk of the Kurnool district. The plates which are of considerable size belonged to a large series formerly covering the flagstaff, the dome and even the walls of the inmost shrine, said to have been presented to the temple by Krishnarāya of Vijayanagar on returning from his northern conquests in 1513 A.D. This famous Sivaite temple, dedicated to Mallikarjuna and situated on the high banks of the Kistna in the midst of malarious jungles and rugged hills, is one of the twelve great shrines of later Hinduism, and is reputed to be the most ancient and sacred of the temples in Southern India. It was richly endowed by Hindu princes and nobles, and was in a prosperous condition till the arrival of the Muhammadans in the seventeenth century (Kurnool District Manual, page 144). Dr. Burgess identifies Srīsailam, or Srīparvata as it is otherwise known, with the Buddhist settlement referred to by the Chinese pilgrim Hiuen Tshang as Po-lo-mo-lo-ki-li, and by the pilgrim Fa-hian as Po-lo-yu (Buddhist Stupas of Amaravati and Jaggayyapeta, page 6). The plates were disposed of by public auction under the sanction of the District Court, as the Pushpagiri Mutt to which the temple belongs was unable, owing to the inaccessibility of the locality, to make proper arrangements for safeguarding it. I proceeded to Kurnool and selected the most interesting of the series for preservation in the Museum. Mr. S. G. Roberts, I.C.S., who while acting as District Judge kindly brought the sale of the plates to my notice, remarks:—"In past ages the

Chenchus defended the temple from an attack by Rohillas, so these wild jungle folk consider that they have a right to the temple they defended, and for some years past they have been repaying themselves by scraping the gold off the plates."

(3) Two lamps of an archaic type found at Chigatēri village in the Bellary district and acquired under the Treasure Trove Act. They bear an inscription in Canarese which states that they were presented to the Sri Ramanathaswami temple at Chigatēri in the year 1201 of the Salivahana era (1279 A.D.).

(4) Five copper plates with copper ring and seal from Vemalurpādu, Guntūr district. They belong to the time of the Eastern Chalukya King Ammaraja II. (945-970 A.D.) and refer to important historical points in this period. The plates, which record the grant of a piece of land to a Brahmin, were purchased by the Superintendent of the Archaeological Survey, Southern Circle, on behalf of the Government of India and lent to this museum for exhibition.

(5) A copper box with gold and silver ornaments used for decorating idols in Hindu temples. found at Pulivalam, Tanjore district, and acquired under the Treasure Trove Act.

(6) A copper pūtam or pedestal in the form of a trough measuring 4 feet 3 inches by 2 feet 3 inches, supported by six moulded legs and with a spout at one end. It was found in the Mannārgudi taluk, Tanjore district, and acquired under the Treasure Trove Act.

The following Treasure Trove copper or bronze images were received during the year :—a figure of Vishnu from Viragalur, Trichinopoly district ; a Sulapidari from Sayanapuram, Tanjore district ; seven Sivaite images accompanied by seven small stone lingams from Panchanadikulam Kilasethi, Tanjore district ; and eleven Vaishnavite images from Tiruppuvanam, Madura district.

8. NUMISMATICS.—The following coins were acquired under the Treasure Trove Act :—

(1) Fifteen Pandyan gold coins (varāhas) found in the South Canara district. They constitute one of the most interesting numismatic finds made during recent years in South India and an addition to the small number of gold Pandyan coins hitherto met with. The obverse bears a series of unrecognizable symbols, while the reverse carries a Nāgarī inscription in three lines which reads Śrī-Pāṇḍya-Dhanamjaya. Rao Bahadur V. Venkayya, Government Epigraphist, to whom I am indebted for this reading, sends the following interesting note :— "Pāṇḍya-Dhanamjaya (*i.e.*, the Pāṇḍya chief who resembled the Mahābhārata hero Arjuna) "was probably a surname of one of the chiefs of Kārkala in the South Canara district. "The colossi at Kārkala and Vēnūr in that district were set up by chiefs belonging "to the Pāṇḍya family, the first by Vira-Pāṇḍya (or Pāṇḍyarāya) and the second "by the younger brother of a prince named Pāṇḍya." Mr. Venkayya observes that Sir Walter Elliot's Coin No. 129 ("Coins of Southern India") bears a legend which may also be read "Pāṇḍya-Dhanamjaya." With regard to the symbols on the coins of the present find he suggests that as one of the Kalasa-Kārkala chiefs bore the title Arirayagandara-dāvani, *i.e.*, "the tying rope of cattle" (hostile kings), it is possible that two of them represent ropes by which cattle are tied.

(2) Sixty-two 'Gajapati' pagodas found in the Malabar district. The examination of this large series has disclosed the fact that there are several types of the coin differing in the early Canarese letters which appear over the back of the elephant and only visible in comparatively few specimens.

(3) Sixty-one punchmarked Buddhist coins found in the Vizagapatam district.

Specimens of the first two coins were distributed to the Indian Museum and other institutions, in accordance with the rules to regulate proceedings under the Indian Treasure Trove Act.

The following coins were added to the collection by purchase :—Moghul coins struck at South Indian mints (Arkat and Chinnapatan) from the Bahawalpur State treasury ; Indo-Dutch, Indo-French (Karikal), a pagoda of Tirumalarāya of Vijayanagar, and other coins purchased locally ; silver East India Company coins of the Madras mint purchased from Messrs. Spink & Son, Limited, London.

A descriptive catalogue was drawn up of a collection of gold coins belonging to His Highness the Raja of Cochin.

To the Governments of Bombay, the Central Provinces, the United Provinces, and to the Bombay Branch of the Royal Asiatic Society the Museum is indebted for many coins presented to it in the course of the year.

9. ECONOMIC AND BOTANICAL.—The Economical and Botanical Assistant made tours to Vandalur, Chingleput district, in October, to the North Arcot district in December, to the Godāvāri and Vizagapatam districts in January, and to Padavedu, North Arcot district, in February. As a result of these tours, specimens of economic interest were collected and a number of photographs taken, chiefly of growing plants, most of which are now exhibited in the Economic and Botanical Galleries. In addition to photographic enlargements which are placed in convenient positions near the exhibits to which they refer, a new departure has been made by placing cabinet photographs in the show cases alongside the actual specimens, and there can be no doubt that the interest of the exhibits is thereby considerably increased.

At Padavedu photographs were taken to illustrate the various processes in the preparation of ganja obtained from Indian hemp (*Cannabis sativa*), and copies of these have been supplied to the Inspector-General of Excise and Salt, Government of India. The Economic and Botanical Assistant reports that at present no attempt is made to extract the fibre from the hemp plants grown at Padavedu, and that to prevent illicit cultivation a large quantity of seed is annually destroyed from which a useful oil could be expressed. The male plants which produce no appreciable quantity of ganja are pulled up and burnt, yet they yield the best fibre, and fibre of fair quality can even be extracted from female plants after they have flowered. By means of an ordinary bullock oil-press my Assistant obtained a viss and a half of oil from seven and a half measures of seed.

The collection illustrating the timber resources of South India has been re-arranged and duplicates eliminated. The specimens are now arranged alphabetically and popular names have been added wherever possible to the scientific ones.

A collection of South Indian oils was sent at his request to Mr. A. Kesava Menon, Government scholarship-holder in England, for the purpose of determining their value in soap-making. He has since published an account of their chemical properties.

A series of Madras vegetable products used in medicine was sent to the recent Allahabad Exhibition.

Other additions made to this section during the year were:—a collection of brushes formed from vegetable fibres; rubber from *Ficus elastica* grown at the Government Experimental Garden, Kullar, the Nilgiris; and silk preparations from the Mulberry Silk-worm (*Bombyx mori*) presented by the Salvation Army Sericulture Farm, Bangalore.

10. GEOLOGY AND MINERALOGY.—A collection of South Indian fossils and minerals presented to the Museum some years ago by Mr. W. E. Hoare was examined and the specimens were named by Mr. G. H. Tipper of the Geological Survey department.

A specimen of iron alumina garnet, of moderate value in jewellery, found at Panagudi, Nāngunēri taluk, was received from the Collector of Tinnevely.

A sample of kaolin or china clay from the Berijam project, Palni hills, was forwarded by the Executive Engineer, Madura Special division, and the Chemical Examiner, Madras, to whom it was sent for analysis, reported that it consists of almost pure aluminium silicate.

11. NATURAL HISTORY.—In the course of a short tour which I made to the Shevaroy hills in September, collections chiefly of birds, insects, and molluscan shells were made, and a number of the birds have replaced older and less perfect specimens in the Bird Gallery. The senior taxidermist visited the Godāvāri district in February and obtained a number of birds, some of which were new to the Museum collection. The show cases containing the exhibited specimens of birds and mammals were all repainted during the year and the median partitions removed, thus admitting light from both sides and enabling the exhibits to be better seen. The interiors of the coral show cases in the Fish Gallery were painted black and the appearance of the white corals is thus considerably enhanced.

A collection of insects made on the Palni hills in 1909 was returned to the Museum from Pūsa, where a number of the species were named by the Imperial Entomologist.

Two living specimens, male and female, of the lion-tailed monkey (*Macacus silenus*) were presented by the Zamindari of Cheyūr, Chingleput district, and are kept in the Museum grounds. This handsome black monkey which inhabits the hill forests of the Malabar coast is not often seen in captivity.

A specimen of the large shark *Rhinodon typicus* measuring 19 feet in length, was captured in a fishing net and landed on the South beach, near the Ice House, on 25th March. Although the fish was examined by my senior taxidermist and notes taken, the matter was unfortunately not brought to my notice till some days later when all traces of it had disappeared. I am informed that the flesh was sold in the local fish bazaars. The Museum already possesses a stuffed specimen of *Rhinodon typicus*, 22 feet long, which was cast ashore dead on the Madras beach in 1889.

Among the more important additions to this section may be noted :—

(1) A female Dugong (*Halicore dugong*) from Tuticorin, measuring 7 feet 3 inches in length. This specimen, for which I am indebted to Mr. James Hornell of the Madras Fisheries Bureau, was kept alive, tethered to an anchor in Tuticorin harbour, till the arrival of the Museum taxidermist. It is now exhibited in a special case in the annexe to the Fish Gallery accompanied by an enlarged photograph of the living animal as it lay surrounded by a crowd of spectators on the beach at Tuticorin. This interesting mammal was only previously represented in the Museum by a skeleton.

(2) The following birds new to the collection :—Common Indian Nightjar (*Caprimulgus asiaticus*) from Madras; Pied Myna (*Sturnopastor contra*), White-necked Stork (*Dissura episcopus*), and Common Heron (*Ardea cinerea*), from the Godāvāri district.

(3) A sea-snake (*Hydrophis spiralis*) from Madras measuring 8 feet 2 inches in length, and one of the largest sea-snakes hitherto recorded. It contained fourteen young ones, each about a foot long, which were sent to Major F. Wall, I.M.S., who has since published an account of them in the Journal of the Bombay Natural History Society. The skin of the mother snake is exhibited in the Reptile Gallery.

(4) Twenty young Russell's Vipers (*Vipera russellii*) removed from the body of the mother and exhibited in their transparent embryonic membranes. The young snakes although only seven and a half inches in length show all the characteristic markings of the species. The mother measured 4 feet $2\frac{1}{2}$ inches.

(5) A Python or Rock Snake (*Python molurus*) from Guindy Park, which although of very moderate size, apparently not exceeding 8 feet in length, had yet on trustworthy evidence managed to swallow a young antelope. The occurrence of this snake in the immediate vicinity of Madras town is noteworthy. The specimen in question has been added to the Museum collection of live animals.

(6) Large nests of an ant (*Cremastogaster* sp.) from the Shevaroy hills where they are found on trees.

(7) A very perfect comb of the Small Indian Bee (*Apis florea*) from the Museum grounds. Specimens of the queen, drones and workers are exhibited in the same case.

(8) A large fresh-water prawn (*Palæmon malcolmsonii*) from Madras. This and other species of *Palæmon* from South India are described in a paper by Mr. George Matthai, of the Christian College, and myself, which appeared recently in the Records of the Indian Museum, Calcutta.

(9) A collection of named Indian earthworms received from Dr. N. Annandale of the Indian Museum.

[2. MARINE AQUARIUM.—In their Order No. 161, dated 26th March 1910, Government sanctioned my proposal that, from 1st April 1910, the Aquarium should be open to visitors from 7 to 11 A.M. and from 2 to 6 P.M. on all days except Friday when it is closed to the public, and that the admission fees should be fixed as follows :—on Wednesday 4 annas per visitor, on other days from 7 to 11 A.M.

1 anna per visitor, and from 2 to 6 p.m. half an anna per visitor. It was also laid down in the G.O. referred to, that students accompanied by their teachers for the purpose of demonstration should be admitted during the morning hours at the rate of half an anna each, and that both the morning and afternoon of the last Monday of each month should be set apart for gosha ladies.

The total number of visitors during the year under review, and the amount realized in entrance fees, were 143,897 and Rs. 5,223 respectively. The greatest number of visitors on any single day was 4,062 on Kannu Pongal (16th January). The total admissions on Wednesdays (when the special rate of 4 annas per visitor is charged), on gosha, and on ordinary days are shown below :—

	Morning.	Afternoon.	Total.
Wednesdays	441	1,210	1,651
Gosha days	159	3,129	3,288
Other days	11,559	127,399	138,958

The Aquarium was opened to the public on the 21st October 1909 and the number of visitors from that date to the 31st March 1910 was 100,463; for the corresponding period of the year under review the number was 70,013. These figures seem to show that the novelty of the Aquarium attracted large numbers of visitors during the early months of its existence, and while there is every indication that it will continue to stand high in public favour, longer experience is required to show whether the present figures will be maintained.

By G.O., No. 281, Educational, dated 24th May 1910, a third keeper was appointed on Rs. 10— $\frac{1}{2}$ —13, and the pay of the second keeper was raised from Rs. 10—1—15 to Rs. 14— $\frac{1}{2}$ —17.

The larger tanks are stocked with fish from the Madras coast, many of which by their bright colours and bizarre form attract much attention, while special novelties such as the horse-fish (*Hippocampus*), sea-anemones, hermit-crabs, etc., are shown in the small separate aquaria. The fish continue to thrive, the chief cause of mortality being fights in which the victory is not always to the strong; for some reason, not as yet apparent, crabs and lobsters of which many beautiful varieties can be obtained locally, do not live for more than a week or two. The large open tank contains specimens of two marine turtles, the Green Turtle (*Chelone mydas*) and the Loggerhead (*Thalassochelys caretta*) which live well in confinement.

Coloured figures of a representative series of Madras sea fish, with their scientific and Tamil names, are exhibited over the tanks and seem to be greatly appreciated by visitors.

13. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 19,234 against 19,204 in 1909-1910 :—

Largest number of readers in a day	151
Smallest	7
Largest on Sunday	135
Smallest	43

The number of standard works added to the library was 278, of which 215 were purchased and the rest presented. Among the books acquired may be mentioned "The Complete Hindoo Pantheon" by E. A. Rodrigues of the Survey Department. Of this scarce work which was issued in parts from the Oriental Lithographic Press, Vepery, Madras, between 1841 and 1845 only a very incomplete copy previously existed in the Library. A copy of the historical essay published in 1696 on the "East India Trade" by Charles Davenant, who is referred to by the late Sir Alfred Lyall as "the chief commercial authority of his day," was also added to the Library.

The second supplement to the Library Catalogue of Books under Authors' Names was published during the year. Slips for a consolidated Subject Index of the books in the Library were in preparation, and it is hoped that the index will be finally ready for press before the end of the current official year.

A statement of the number of books issued to readers during the last two years, under the various subject catalogue heads, is subjoined :—

	1909-1910.	1910-1911.
Anatomy ; biology ; natural history ; zoology	715	807
Anthropology ; folklore	462	514
Archæology ; architecture	193	189
Arts ; industries	1,321	1,208
Atlases ; maps	103	95
Belles lettres	4,418	4,319
Botany : arboriculture ; horticulture	229	217
Chemistry ; agriculture ; photography	383	326
Classics	135	128
Dictionaries ; encyclopædias ; gazetteers ; manuals ..	4,988	5,084
Economic products	69	182
Education ; ethics ; logic	776	824
Exhibitions	35	24
Forestry ; timbers	37	58
Geography ; physical geography ; physiography	170	103
Geology	87	115
History	2,803	2,913
Jurisprudence	452	438
Medicine ; surgery ; pathology	316	282
Microscopy	26	33
Mineralogy ; metallurgy	141	132
Natural philosophy	685	569
Numismatics ; medals ; heraldry	81	97
Philology ; epigraphy	1,517	1,489
Photographs	101	83
Physiology	174	247
Public health	117	98
Religion	793	1,035
Sport and games	316	288
Travels ; voyages	212	180
Vernacular languages	119	75
<i>Fort St. George Gazette</i> (other than current issues) ..	503	621

14. UNIVERSITY LIBRARY.—Books recommended by the Board of Studies in Engineering were received during the year.

A small sub-committee has been appointed to revise the manuscript slips already prepared for the catalogue of books arranged according to authors' names. The preparation of the subject indexes has been deferred pending the issue of the authors' catalogue.

Although the Library cannot be formally opened to the public till the issue of the catalogue, it has been used by a number of post-graduate students and others engaged in special research.

15. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

The usual list of donations and statement of expenditure are appended.

APPENDIX A.

DONATIONS, 1910-1911.

Assistant Archæological Superintendent for Epigraphy, Southern Circle—

Inscribed copper plates (Nos. 4, 7 and 9 of appendix A of his annual report for 1908-1909).

Balasundaram, Mr. J. S.—

Living Chameleon (*Chamæleon calcaratus*).

Boys, Mr. H.—

Silk moth (*Actias selene*).

Calcutta. Superintendent, Indian Museum—

Thirty seven species of Indian Diptera.

Indian earthworms (named species).

Campbell, Mr. J.—

Eggs and young of a snake (*Tropidonotus stolatus*).

Campbell, Rev. Dr. T. V.—

Rhinoceros beetle and shells of *Ariophanta bistrialis*, from the Shevaroy hills.

Insects (Dermaptera, Blattidæ, etc.) from the Shevaroy hills.

Eggs of Lesser Florican (*Sypheotis aurita*) from Cuddapah.

Central Provinces, Director of Agriculture—

A silver coin of Ahmad Shah Bahadur found at Jubbulpore city.

A copper coin of Muhammad II found at Bhandara.

A gold Gupta coin found at Sakhor in the Hatta tahsil.

Nine rupees of Aurangzib, Surat mint, found at the village of Bakal in the Sahora tahsil, Jubbulpore district.

Nineteen copper coins found in the Chanda district.

Sixteen copper coins found in the village of Badpani in the Lakhnadon tahsil, Seoni district.

Chandragiri range (North Arcot district), Deputy Ranger—

Stems of *Bambusa arundinacea*.

Cheyūr. The Zamindarni—

Two Lion-tailed monkeys (*Macacus silenus*).

Chief Engineer for Irrigation, Madras—

Old plan of Madras in 1746.

Coimbatore, Conservator of Forests, Southern Circle—

Fruit of *Berberis aristata*.

Fruit of *Eugenia arnottiana* and a cross-section of *Stephegyne parvifolia*.

Fibre and bark specimens of *Derris scandens*.

Corporation of Madras—

Llama.

Two Wallabies.

Leopard (*Felis pardus*).

Golden Pheasant.

Black Ape.

Pheasant.

Sloth Bear (*Melursus ursinus*).

Mouse Deer (*Tragulus meminna*).

Ring Pheasant.

Peacock (*Pavo cristatus*).

Crocodile (*Crocodilus palustris*).

Entomologist, Imperial, Agricultural Research Institute, Pusa—

Specimens of *Apis florea*.

Specimens of silk moths from Pusa.

Ganjām, Collector—

Two silk cocoons (*Antheræa paphia*) from Korada, Ganjām district.

Hoare, Mr. W. E.—

South Indian fossils.

Hornell, Mr. J.—

Dugong (*Halicornia dugong*) from Tuticorin.

Johnston, Mr. W. A.—

Snake (*Typhlops braminus*).

- Kumara Menon, Mr. N.—**
Trombidium sp. from the Tinnevely district
- Lahore, Central Museum, Curator—**
 Twenty-eight Moghul rupees.
 An ancient Kashmir coin.
- Loveluck, Mr. E. B.—**
 Two live crocodiles (*Crocodilus palustris*) from Mangalore
- Madura, Executive Engineer, Special division—**
 Kaolin (aluminium silicate), from the Palni hills.
- Mathews, Mr. A. R., Madras Port Trust—**
 Sea-snake (*Hydrophis spiralis*).
 Eel (*Muraena tessellata*).
 Fish (*Julis lunaris*).
- Ootacamund, Government Botanical Gardens, Curator—**
 Rubber from *Ficus elastica*.
- Quilon, Divisional Forest Officer—**
 Gum of *Pterocarpus marsupium* (gum kino).
- Robinson, Mr. W. W.—**
 Fish (*Ostracion cornutus*).
- Royal Asiatic Society, Bombay Branch—**
 Two Andhra coins of 2nd or 3rd century A.D., of kings Dhutukalananda and Mulananda, found in the Karwar district of the Bombay Presidency.
- Shepherd, Col. C. E.—**
 Collection of fish-otoliths.
- Subrahmaniam, Mr. V., M.A., Forest Zoologist to the Government of India, Dehra Dun, U.P.—**
 A book scorpion (*Chelifer* sp.). } Both from South Arcot.
 A field mouse (*Mus* sp.). }
- Sundara Raj, Mr. B., B.A.—**
 A field mouse (*Mus buduga*).
- Superintendent, Archæological Survey, Southern Circle Madras—**
 Two inscribed granite slabs found at the weir of the Veeranum tank, South Arcot district.
- Superintendent, Archæological Survey, Western Circle, Poona—**
 Two gold coins (Kabul current and Moghul Aurangzib).
 Eleven silver coins (Moghul rupees and Native State coins).
 Two copper coins (Indore).
- Sydney, Australian Museum, Curator—**
 Two Australian boomerangs.
- Tinnevely, Collector—**
 Specimen of iron-alumina garnet.
- Trichinopoly, Superintendent, Central Jail—**
 Stone specimen (gneiss).
 Specimen of kunkur.
- United Provinces Government—**
 Seventeen coins found in the Khiri district (Moghul and other rupees).
 Seven coins found in the Mainipuri district (one gold and six silver Tughlaq coins).
 Two silver coins found in the Agra district (Moghul rupees).
 One silver coin found in the Bangsaon tahsil of the Gorakpur district (Moghul rupee).
 Eleven silver coins found in the Lucknow district (Lucknow and Benares rupees).
 Four silver coins found in the Mirzapur district (Moghul rupees).
 Two copper coins found in the Banda district.
 Three silver coins found in the Shahjahanpur district (Moghul rupees).
- West Coast division, Executive Engineer—**
 Fifty-eight fragments of images from the Sultan's Battery Jain temple.

Marine Aquarium

	Actuals, 1910-1911.	Revised estimate, 1910-1911.
	RS.	RS.
Permanent establishment, Marine Aquarium—		
Head-keeper, second keeper, third keeper and two door-keepers—5 persons	888	1,041
Permanent non-pensionable establishment, Marine Aquarium—		
Night watchman, sweeper, two fishermen and fisher-boy—5 persons		
Famine batta	146	87
Total, Establishment ..	1,034	1,128
Supplies and Services—		
Food for animals	667	750
Fittings, etc., for the collection	168	180
Total, Supplies and Services ..	835	930
Contingencies—		
Wages and cooly	150	..
Tour charges	377	350
Postage and Telegraph charges .. .. .	..	5
Office expenses	81	50
Miscellaneous	23	50
Rents, rates and taxes	196	196
Purchase and repair of furniture	52	50
Total, Contingencies ..	879	701
Total, Marine Aquarium ..	2,748	2,759
Grand Total ..	34,406	36,686

Order—No. 478, Educational, dated 15th July 1911.

Recorded.

2. The thanks of Government are due to the persons who made donations to the Museum during the year.

(True Extract.)

L. DAVIDSON,
Ag. Secretary to Government.

To the Superintendent, Government Museum.
 „ Director of Public Instruction.
 „ Accountant-General.
 „ Public Department.
 „ Revenue Department.
 „ Director-General of Archaeology (with C.L.).
 „ Superintendent, Archaeological Department, Madras
 Editors' Table.

8-12

Government of Madras.

EDUCATIONAL DEPARTMENT.

Recd.

Enclosures

Regd.

} 1912.

Spare copies

G.O. No. 659, 20th July 1912.

Government Museum.

Recording report on the working of the —, the Marine Aquarium and the Connemara Public Library, for 1911-12.

GOVERNMENT OF MADRAS.
EDUCATIONAL DEPARTMENT.

• READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B.C.M., F.L.S., Superintendent, Government Museum, Madras.
To—the Secretary to Government, Educational Department.
Dated—the 4th May 1912.
No.—328.

I have the honour to forward for submission to His Excellency the Governor in Council, the report on the working of the Government Museum, the Marine Aquarium and the Connemara Public Library, during the year 1911-12, and to request that I may be supplied with 160 copies for distribution to other Museums, etc.

ENCLOSURE.

**Administration Report of the Madras Government Museum, etc.,
for 1911-1912.**

With the sanction of the Secretary of State, a combined post of Superintendent of the Government Museum and Principal Librarian of the Connemara Public Library, was created on a salary of Rs. 500--50--300 a month, with free quarters, and I was appointed thereto with effect from the 1st April 1911 on an initial salary of Rs. 500. I had previously acted as Superintendent and Principal Librarian since 9th December 1908, the date on which Mr. Thurston left Madras.

2. VISITORS.—The numbers during the year under review, as well as for the preceding year, were as follows :—

	1910-1911.	1911-1912.
Total number of visitors to the Old Building ..	444,837	326,968
Total number of visitors to the New Building ..	437,984	335,663
Largest number of visitors on a single day to the Old Building	77,723	45,384
Largest number of visitors on a single day to the New Building	79,084	35,414
Total number of visitors on Sundays to the Old Building	68,368	55,311
Total number of visitors on Sundays to the New Building	64,228	57,765
Total number of gosha female visitors (on the first Saturday in each month)	12,356	10,818

The decrease in the number of visitors cannot be accounted for ; but, as pointed out by Government in reviewing a former report, “ the number of persons who visit a public institution like a museum depends on a variety of causes, and naturally fluctuates from year to year”. As usual Kannu Pongal (16th January) was the day on which the Museum was attended by the largest number of visitors.

The Museum was visited by Their Excellencies Lord and Lady Carmichael, and His Excellency Lord Carmichael paid several visits during the short period he was Governor of this Presidency.

3. BUILDINGS.—In G.O. No. 985 W., dated 2nd August 1911, Government sanctioned an estimate amounting to Rs. 34,500 for extending the Sculpture and Economic Galleries and providing a new office for clerks. The construction of the latter has been taken in hand ; and as soon as it is finished, the existing office building will be demolished to make way for the extensions to the galleries. It is hoped that every effort will be made by the Public Works Department to execute the work as quickly as possible.

4. **THEATRE.**—The Theatre was used on twelve occasions during the year as follows :—

Amateur Dramatic Society's entertainments	..	..	..	..	7
Madras Musical Association's concerts	..	..	..	..	2
Concert in aid of St. Andrew's Poor School	..	..	..	..	1
Collegiate School prize distribution	..	..	..	..	1
Doveton Girls' School prize distribution	..	..	..	..	1

5. **ESTABLISHMENT.**—On my representation that the pay (Rs. 100—5—150) of my Personal Assistant, who is also Sub-Librarian of the Connemara Public Library, was inadequate, Government have been pleased to raise it to Rs. 100, rising to Rupees 200 by annual increments of Rs. 10.

6. **MUSEUMS' CONFERENCE.**—I was deputed by Government to the Conference of Orientalists convened by the Government of India at Simla in July. In addition to oriental studies, the Conference discussed the subjects of Museums and Archæology. The second triennial Museums' Conference assembled at Madras in January, the first one having met at Calcutta in December 1907. The Conference was opened by His Excellency Lord Carmichael, who evinced much interest in its proceedings. The deliberations extended over three days and eighteen delegates attended, including the Directors of the Colombo and Federated Malay States Museums. Dr. Vogel, Officiating Director-General of Archæology, was elected Chairman of the Conference and I was elected Honorary Secretary of the Standing Committee.

7. **HISTORICAL.**—On the suggestion of Mr. Rea, Superintendent of the Archæological Survey, Southern Circle, an old wooden door from the ruined fort at Anjengo on the Travancore coast has been sent to the Museum. The place is now little more than a fishing village, but it was one of the earliest English settlements in India and has many interesting associations. The door, which is massive and of a primitive type of construction, is studded with strong iron nails.

8. **ARCHÆOLOGY AND ART.**—The collection of South Indian bronze images, including a number acquired from Treasure Trove finds in recent years and others not previously exhibited, has been arranged in the course of the year. The entire landing at the top of the staircase in the New Building has been set aside for the larger figures and all of them have been labelled. The Museum collection of these bronzes, which are now awakening considerable interest in Art circles in Europe, is without doubt the finest in existence. The two figures of Natarāja (the dancing Siva) which are comparatively well-known because they have more than once been figured in works on Indian Art, are still outstanding features in the collection, but the recent additions comprise others of high merit.

Among the more noteworthy additions to this section are the following :—

(1) Five copper plates with ring and seal acquired through the Revenue and Archæological departments from the chief priest (Bhattāchārya) of the Vaishnava temple at Vēlūrpālaiyam village in the North Arcot district. The Assistant Archæological Superintendent for Epigraphy, Southern Circle, states that these plates “add largely to our knowledge of the later Pallava history prior to the predominance of the Ganga Pallavas” (*vide* paragraph 5 of part II of his report, in G.O. No. 832, Public, dated 28th July 1911).

(2) Thirteen copper plates forwarded by the District Judge of Madura to the Assistant Archæological Superintendent for Epigraphy and sent by the latter for deposit in the Museum. Most of the plates belong to the Sētupatis of Rāmnād and the Nāyaka dynasty of Madura (*vide* paragraphs 61–62 of the report referred to *supra*).

(3) Three sets of copper plates received from the Assistant Archæological Superintendent for Epigraphy, two of which relate to grants by kings of the Eastern Chālukya dynasty (*vide* paragraphs 60–61 of part II of his report, in G.O. No. 538, Public, dated 28th July 1909).

(4) A sample brick (measuring $21 \times 10\frac{1}{2} \times 3$ inches) from the Buddhist buildings at Rāmāthīrtham in the Vizagapatam district.

(5) A fine set of photographs of the Amarāvati sculptures exhibited in the Museum kindly supplied by Messrs. Johnston and Hoffmann of Calcutta. These photographs have been mounted on a revolving stand in the Archæological Gallery.

The following stone idols have been acquired under the Indian Treasure Trove Act:—

(1) Fourteen idols, including figures of Siva, Vishnu, Subramanya, Brahma and Ganesa, discovered in the course of excavation in the temple poramboke lands at Keelnarma village, Wandiwāsh taluk, North Arcot district.

(2) Fourteen idols representing Vishnu, Lakshmi, Garuda, and eleven ālvārs or saints, discovered while excavating the foundations during repairs to the Jama Masjid at Tādpatri, Anantapur district.

(3) Fifteen idols (among which is a Nandi or bull of good workmanship) and seven lingams found at Rāvinūṭala village, Guntūr district.

The following Treasure Trove bronze images were acquired during the year:—

A figure of Krishna subduing the serpent Kāliya, from South Arcot, and belonging to a type not previously represented in the collection; a figure of Siva from the Tanjore district; a set of small figures (Vishnu, with his two wives, and Krishna) from South Arcot; and a typical collection of small Vaishnava idols from the Rāmnād district.

A fine group of Siva and Parvati seated on a pedestal and a figure of Mānikka-vāṇagar, one of the sixty-three saints of the Saivite faith and reputed author of the collection of hymns known as the Tiruvāṇagam (Sacred Utterances), both from the Tanjore district, were acquired by purchase from the Victoria Technical Institute.

The Archæological Section was inspected and reported upon by Dr. J. Ph. Vogel, Officiating Director-General of Archæology. Acting on his advice, the Amarāvati sculptures which had lain exposed in the Museum grounds for many years and had in consequence undergone some deterioration, were removed to the Museum cellars. Mr. Rea, Superintendent, Archæological Survey, Southern Circle, was deputed by Government to devote part of his time to the work of arranging and cataloguing the antiquities in the Museum. The work was commenced in the latter half of the year, but pending the completion of a temporary shed which is in course of erection, little progress has so far been made.

9. NUMISMATICS.—The following coins were acquired under the Treasure Trove Act:—

(1) One hundred and one varāhas or pagodas and two hundred and twenty-five half-pagodas, found in the South Canara district. They belong to the Vijayanagara dynasty and were struck by the following kings:—Dēvarāya, Krishnarāya, Achyutarāya and Sadāsivarāya; but the find also included a few pagodas of Sadāsiva the first Nāyaka of Ikkēri.

(2) Seven “Lingāyat” pagodas found in the North Arcot district.

(3) Six Venetian sequins from the Malabar district struck by the Doges Carlo Ruzzini, Francesco Loredan, Alvise Mocenigo, Paolo Renier and Ludovico Manin.

(4) Four gold fanams, known locally as “rukalu”, from the Nellore district.

(5) One Porto Novo pagoda or “poovarāhan”, from the Chingleput district.

(6) Two Roman silver coins from the Coimbatore district. They are denarii of Tiberius and belong to a common type.

Specimens from the first two of these finds were distributed to the Indian Museum and other institutions in accordance with the rules to regulate proceedings under the Indian Treasure Trove Act (appended to G.O. No. 604, Public, dated 26th July 1907). As these rules are silent with regard to the disposal of coins remaining after distribution, and not sold within six months of an advertisement in the *Fort St. George Gazette* or presented to selected institutions in Europe, Government have, on my recommendation and with the previous sanction of the Government of India, been pleased to rule that such surplus coins should not be melted down, but retained in this Museum and advertised for sale periodically in a few selected publications in Europe and India (G.O. No. 376, Public, dated 28th March 1912).

Numerous coins found during the course of excavations in the buried city of Periapatnam in the Rāmnād district were received from the Archæological Department. They are referable to the Chōla, Pāndya, Vijayanagara and Sētopati dynasties.

Three inscribed Andhra lead coins in an unusually good state of preservation and eight copper coins belonging to the Eastern Chālukya dynasty were received from the Collector of Gōdāvari.

Thirty-seven coins from Ceylon (Ceylon English, Ceylon Dutch, Pulicat, Negapatam, Kandyan, Sētupati, and Roman) and two Indo-Danish lead coins struck at Tranquebar (Frederick III. and Christian V.) were acquired by purchase.

To the Governments of the Central Provinces, the United Provinces, the Punjab, Assam and Mysore, and to the Bombay Branch of the Royal Asiatic Society the Museum is indebted for many coins presented to it in the course of the year.

10. ECONOMIC AND BOTANICAL.—Mr. M. O. Parthasaradhi Aiyangar, M.A., was transferred temporarily to the Teachers' College in July and his place as Economic and Botanical Assistant was filled by Mr. T. V. Narasinga Rao, B.A., a local graduate in Botany. The latter officer made tours to the South Arcot district in January, and to Tanjore, Negapatam, Trichinopoly, Madura and Koilpatti in March, as a result of which various specimens of economic importance were collected and a number of photographs, both of living plants and of agricultural operations, were taken. Most of these photographs are placed in the Economic Gallery alongside the exhibits to which they refer.

Among the economic products collected were the following :—

- (1) Varieties of paddy, ground-nuts, cumbu, ragi, tenai and maize from the Agricultural Farm at Palur.
- (2) New varieties of maize and of sugarcane from Tanjore.
- (3) Vegetable products used in perfumery from Negapatam.
- (4) Medicinal roots from Madura.
- (5) Samples of Cambodia cotton and a new variety of maize from Koilpatti.

Following a visit which I paid to the Vellore Central Jail during the Christmas holidays a set of seventy-two different shades of dyed woollen yarn, used in the manufacture of carpets by the prisoners, was presented to the Museum by the Superintendent of the Jail. These shades are all the result of natural dyes, chiefly vegetable, and a special case has been prepared for their reception.

Certain economic and botanical specimens have been forwarded to the Field Museum of Natural History, Chicago.

11. GEOLOGY AND MINERALOGY.—The large series of cores from borings made for Messrs. Best & Co., Madras, while prospecting for coal in the Gōdāvari and Chingleput districts (referred to in the Annual Report for 1906-07) which had been sent to the Geological Survey of India, were returned to the Museum during the year. I hope to select a representative series for exhibition on the publication by the Geological Survey Department of the results of their examination of the cores.

12. NATURAL HISTORY.—In the course of a tour which I made to the Cochin State in September-October a number of interesting specimens were collected. Owing to facilities which were kindly placed in my way by the Cochin Darbar a profitable week was spent in the State Forests and two new species of animal were discovered, *viz.*, a tortoise and a fresh-water crab. I have described these under the names of *Geoemyda silvatica* and *Liotelphusa malabarica* and accounts of them will appear in the *Records of the Indian Museum*, Calcutta. Short tours were made by the Senior Taxidermist to Ongole in April and by the Second Taxidermist to Cochin in March.

Among the more important additions to this section the following may be noted :—

- (1) The first specimen of Swinhoe's Snipe (*Gallinago megala*) recorded from peninsular India, shot by Mr. R. F. Stoney in the Chingleput district, on 6th December. This species breeds in Eastern Siberia and Northern China, migrating in the cold weather to Southern China and the Malay Archipelago; a few specimens have been recorded from the Malay Peninsula, Burma and Assam. Five other specimens were received at the Museum in the course of the season, all shot in the Chingleput

district by sportsmen to whom the distinctive characters had been pointed out by Mr. Stoney. It seems probable that Swinhoe's Snipe has been previously confused with the common Pintail Snipe (*Gallinago stenura*) to which it bears some resemblance.

(2) The following other birds new to the collection :—Bourdillon's Blackbird (*Merula bourdilloni*), Blanford's Laughing-Thrush (*Trochalopteron meridionale*), Wynaad Laughing-Thrush (*Garrular delesserti*) and Bourdillon's Babbler (*Rhopocichla bourdilloni*), all from the Travancore hills and presented by the Trivandrum Museum; Ruby-throated Bulbul (*Pycnonotus gularis*), Black-backed Pied Shrike (*Hemipus picatus*) and Small Sun-bird (*Arachnechthra minima*) from the Cochin State Forests; Indian Reef-Heron (*Leptorodius asha*) from Madras.

(3) The skull and part of the dorsal shield of a Leathery Turtle (*Dermochelys coriacea*), the largest and rarest of the marine turtles, and one for which there is no previous record from the Coromandel Coast. It was captured alive on the Guntūr Coast and was being exhibited in a show at Ongole when I was informed of the fact by an Indian correspondent. The taxidermist who was despatched immediately found on his arrival that the turtle had died some days previously, but he was able to exhume certain of the remains sufficient to establish the identity of the species and to form an interesting exhibit.

(4) In addition to the new species already referred to, specimens of the following tortoises previously recorded only from Travancore were obtained in Cochin State :—*Testudo travancorica* and *Geoemyda trijuga* var. *coronata*.

(5) A number of fish new to the collection including *Carcharias sorrah*, *Rhinoptera javanica* and *Rhynchobatus djiddensis*.

In addition to the above species none of which had previously been acquired by the Museum, a considerable number of specimens, chiefly birds, have taken the place of older and less perfect ones in the collections.

To Captain F. C. Fraser, I.M.S., I am indebted for assistance rendered in connection with the Museum collection of butterflies and particularly for relaxing and setting most of those taken in the Cochin Forests.

Among the additions to the live animals, which continue to be a source of great attraction, were a Malabar Squirrel (*Ratufa indica* var. *maxima*) from Calicut, a Rock Horned Owl (*Bubo bengalensis*) captured at Anderson's Bridge, Madras, Travancore Tortoises (*Testudo travancorica*) from the Cochin Forests, and specimens of the large Monitor Lizard (*Varanus bengalensis*).

In ten cases of snake-bite treated by permanganate of potash, the snakes were sent to me for identification from the mufassal under the orders in G.O. No. 1068, Public, dated 19th November 1910. Five of the snakes were venomous species, viz., Cobra (2), Russell's Viper (2) and *Echis carinata* (1), while five belonged to the following harmless species:—*Lycodon aulicus* (3), *Gongylophis conicus* (1) and *Dipsas trigonata* (1). I was also consulted in a police case where a snake said to have caused the death of a girl aged six years had been produced. It proved to be a half-grown cobra with the fangs intact and was therefore in all probability capable of inflicting a fatal bite.

13. MARINE AQUARIUM.—The total number of visitors during the year under review, and the amount realized in entrance fees, were 124,966 and Rs. 4,654 against 143,897 and Rs. 5,223 in the previous year. The largest number of visitors on any single day was 4,533 on Kannu Pongal (16th January). The total admissions on Wednesdays (when the entrance fee is four annas) and on gosha and ordinary days (when the fee is one anna in the forenoon and half an anna in the afternoon) are shown below :—

	Morning.	Afternoon.	Total.
Wednesdays	399	1,354	1,753
Gosha days	132	2,225	2,357
Other days	11,286	109,570	120,856

A popular guide to the Aquarium priced one anna a copy was issued in January. The edition of 500 copies was exhausted before the end of the year, but a reprint is in the press and will be issued shortly.

A fine specimen of the Hawksbill Turtle (*Chelone imbricata*) from which the tortoise-shell of commerce is obtained, was procured from Tuticorin through the kind services of Mr. Hornell of the Fisheries Bureau.

Two serious outbreaks of disease occurred among the fish in the latter half of the year, causing the death of a considerable number including some of those which had been longest in the Aquarium. Specimens of the diseased fish were sent to the King Institute, Guindy, and Dr. Maitland Gibson reports that death was due to a septicæmia caused by an undetermined bacillus present in large numbers in the blood. In the later stages of the disease an apparently fungoid growth appeared on the skin. By carefully removing all affected fish and thoroughly cleansing the tanks the disease appears to have been stamped out and the inmates of the Aquarium were seemingly in perfect health at the close of the year.

Special arrangements were made during the year for the admission of private parties including gosha ladies, during the hours in which the Aquarium is ordinarily closed to the public.

14. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 18,374 against 19,234 in 1910–1911:—

Largest number of readers in a day	..	..	..	..	..	176
Smallest	..	..	..	..	..	8
Largest	..	..	..	..	..	131
Smallest	..	..	..	..	..	33

The number of standard works added to the Library was 291, of which 261 were purchased and the rest presented. The following old prints were acquired and are exhibited in the Library:—

- (1) Fort St. George on the Coromandel Coast. By I. Van Ryne (no date).
- (2) Palace of the late Nabob of Arcot. By Col. Ward (1803).
- (3) View of part of St. Thomé Street, Fort St. George. By Col. Ward (1804).
- (4) View from the King's Barracks, Fort St. George. By Col. Ward (1804).
- (5) View of Mount St. Thomas, near Madras. By Lieut. James Hunter (1804).
- (6) Fort Square from the South side of the Parade, Fort St. George. By Col. Ward (1805).

Government have been pleased to sanction the supply of the following additional periodicals to the Library:—

Weeklies —

Athenaeum.
Public Opinion.
London Times Literary Supplement.

Monthlies—

Contemporary Review.
Fortnightly Review.
English Review.
Nineteenth Century and After.
Geographical Journal.
Bookman.
Knowledge.
Madras Christian College Magazine.

Quarterlies—

Imperial and Asiatic Quarterly Review.
Hibbert Journal.
Journal of the Mythic Society, Bangalore.

I believe that the addition of these periodicals is greatly appreciated by the general readers using the Library.

The third supplement to the Library Catalogue of Books under Authors' Names was published during the year. The work of preparing slips for a consolidated Subject Index of the books in the Library was taken in hand, but owing to the pressure of current work the index could not be made ready for the press before the end of the year under review. It is hoped that the work will be finished and the printing taken in hand before the end of the current year.

A statement of the number of books issued to readers during the last two years, under the various subject catalogue heads, is subjoined :—

	1910-1911.	1911-1912.
Anatomy; biology; natural history; zoology	807	912
Anthropology; folklore	514	496
Archæology; architecture	189	237
Arts; industries	1,208	1,267
Atlases; maps	95	72
Belles lettres	4,319	4,608
Botany; arboriculture; horticulture	217	209
Chemistry; agriculture; photography	326	297
Classics	128	206
Dictionaries; encyclopædias; gazetteers; manuals ..	5,084	5,291
Economic products	182	294
Education; ethics; logic	824	885
Exhibitions	24	19
Forestry; timbers	58	47
Geography; physical geography; physiography ..	103	92
Geology	115	104
History	2,913	3,529
Jurisprudence	438	382
Medicine; surgery; pathology	282	337
Microscopy	33	28
Mineralogy; metallurgy	132	164
Natural philosophy	569	598
Numismatics; medals; heraldry	97	89
Philology; epigraphy	1,489	896
Photographs	83	142
Physiology	247	308
Public health	98	104
Religion	1,035	1,408
Sport and games	288	182
Travels; voyages	180	261
Vernacular languages	75	46
<i>Port St. George Gazette</i> (other than current issues) ..	621	719

15. UNIVERSITY LIBRARY.—The question of a separate building for the Library is under correspondence between the Library Committee and the Syndicate of the University, as the whole of the space which the Connemara Library was able to allot to the University Library is now occupied by the books of the latter and the Connemara Library is itself rapidly approaching a similar need for expansion.

The Catalogue of Books under Authors' Names was revised by the sub-committee appointed for that purpose and is in the press.

The Library was, as in the previous year, used by a number of post-graduate students and others engaged in special research work; it will be opened for general use as soon as the catalogue is ready.

16. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

The usual list of donations and statement of expenditure are appended.

APPENDIX A.

DONATIONS, 1911-1912.

- Allen, Mr. Roscoe P.—
Basalt from the Kurnool district.
- Annandale, Dr. N., Indian Museum, Calcutta—
Specimen of the common medicinal leech of Northern India.—*Linnæus* (*Poecilobdella*) *granulosa*, Savigny.
- Assistant Archæological Superintendent for Epigraphy, Southern Circle—
Three sets of copper plates (from the Kistna district), Nos. 5, 6 and 8 of the Annual Report for Epigraphy, 1908-09.
Thirteen copper (plates from the Madura district), Nos. 3 to 7 and 9 to 16 of the Annual Report for Epigraphy, 1910-11.
- Beardsell, Mr. W. A.—
Living black scorpion (*Palamnæus swammerdami*) from Madras.
- Bickham, Mr. W. S.—
Swinhoe's snipe (*Gallinago megala*) from the Chingleput district
- Boys, Mr. H.—
Bat (*Megaderma lyra*) from Madras.
- Bruce Foote, Mr. R.—
Funeral urn (found in the Nizam's territory on the left bank of the Tungabhadra washed out of a grave by a flood).
- Central India, First Assistant to the Agent to the Governor-General—
Silver coin—Qutubuddin Mubarakshah.
Copper coin—Muhammad II.
Silver coin—Akbar II.
- Central Provinces, Director of Agriculture—
Rupee of Akbar—Mint, Urdu-Zafarqarin.
Rupee—Ahmad, Katak Mint, Mahratta type, regnal year 5.
Four rupees—One of Muhammad, Kora Mint; three of Shah Alam II, Chattarpur Mint.
Copper coin—(Aurangzeb, Elichpur Mint) found in Wardha district.
Eight Moghul copper coins.
Four silver coins from Mandla district.
Four rupees of Aurangzeb, Akbarnagar, Katak and Narnol Mints.
Six rupees of Aurangzeb, Golconda and Surat Mints.
- Coimbatore, Conservator of Forests, Western Circle—
Fruit of *Flacourtia ramontchii*.
- Conran, Mr. J. D.—
Macaw (*Ara macao*).
- Corporation of Madras—
Two antelopes (*Antelope cervicapra*).
Leopard (*Felis pardus*).
Striped hyæna (*Hyæna striata*).
Brown lemur (*Lemur fulvus*).
Sarus crane (*Grus antigone*).
Malay bear (*Ursus malayanus*).
Pelican (*Pelecanus philippensis*).
Cassowary (*Casuarus galeatus*).
- Devanesan, B.A., Mr. D. W.—
Land shells from Sivaganga, Madura district.—*Ariophanta semirugata*, *Helix vittata*, *Rachis punctata*.
- D'Lemos, Mr. R.—
Cobra (*Naia tripudians*).
- Frank, Rev. H.—
Tusser moth (*Antheræa paphia*).
- Fraser, I.M.S., Captain F. C.—
Skins of cobra (*Naia tripudians*), krait (*Bungarus cæruleus*), Russell's viper (*Vipera russellii*) and *Echis carinata*.
- Fraser Mr. I. S.—
Swinhoe's snipe (*Gallinago megala*) from Walajabad, Chingleput district.
- Geological Survey of India, Calcutta, Director—
Geological map of India (in six sheets).

Gravelly, Mr. F. H.—

Tartarid (*Schizomus peradeniyensis*) from Ceylon.

Harding, Mr. C. P., Segari Rubber, Ltd., Segari, Dinding, Straits Settlements—

Specimen of plantation Para rubber (*Hevea brasiliensis*).

Henderson, Miss—

Shells from the Shevaroy and Palni hills.

Ariophanta thyreus from the Nilgiris.

Two rose-ringed parrots (*Ptilinopus torquatus*).

Koore, Mr. W. E.—

Living Malabar squirrel (*Ratufa indica* var. *maxima*).

Holman, Mr. D.—

Sea lobster (*Panulirus dasyopus*) from Madras Harbour.

Hudson, Mr. R. D.—

Four pit-vipers (*Ancistrodon hypnale*), } both species from Travancore.
Earth snake (*Sibyura brevis*), }

Indian Museum, Calcutta, Assistant Superintendent in charge of Fish and Shells Department—
Shells from Ganjam and Travancore.

Johnston, Mr. W. H.—

Painted grasshoppers (*Poecilocera picta*) from the Nellore district.

Johnston & Hoffmann, Messrs., Calcutta—

One hundred photos of the Amaravati sculptures in the Museum.

Kemp, Mr. Stanley, Indian Museum, Calcutta—

Phylloped (*Apus cancriformis*) from the United Provinces.

Lahore Central Museum, Curator—

Two silver coins (Sultans of Delhi).

Lawson, C.I.E., Mr. A. E.—

Snake (*Hydrophobus nympha*) from Madras.

Marsh, Rev. C. R.—

Specimens of pre-historic pottery and fragments of human bones from the Kurnool district.

Meston, B.D., Rev. W.—

Insect larva.

Mitchell, Mr. H. H. G.—

Three pieces of wood found in the course of excavations at Madras Harbour.

Mysore Government, Bangalore—

Gold Viraraya fanam.

Nellore District Forest Officer—

Samples of Pegmatite exhibiting dendritic markings.

Quirke, I.M.S., Captain M. G.—

Waterbug (*Belostoma indicum*) from Madras.

Ramunni Menon, B.A., Mr. K.—

Cæcilians (*Uraeotyphlus malabaricus*) from Kondotti, South Malabar.

Robinson, Mr. W. W.—

Sea urchin and six fish from Madras Harbour.

Royal Asiatic Society, Bombay Branch—

Four silver coins of Zaman Shah Durani, Muhammad Shah Durani, Shah Shujah and Muhammad Shah.

Twelve silver coins—One of Akbar, two of Shah Jahan I and nine of Aurangzeb.

Nine silver coins of—Shah Rukh of Persia; Nadir Shah of Persia; Ahmad Shah Durani; Aurangzeb—Moghul; Shah Alum Bahadur—Moghul; Muhammad Shah—Moghul; Alamghir II; Ahmad Shah Bahadur; Farruksiyyar.

Shillong, Provincial Cabinet of Coins—

Seven silver coins—Sultans of Bengal (from Sylhet district).

Four silver coins—Sultans of Bengal (from Dacca district).

Smith, M.A., Mr. W. Erlam—

Tusser silk moth (*Antheraea paphia*).

Hawk-moth (*Daphnis nerii*).

Stoney, Mr. R. F., Executive Engineer, Madras—

Peregrine falcon (*Falco peregrinus*), } all from the Chingleput district.
Swinhoe's snipe (*Gallinago megala*), }
Jack snipe (*Gallinago gallinula*), }

Superintendent, Archaeological Survey, Southern Circle, Madras—

Brick from the Buddhist buildings at Rāmathīrtham, Vizagapatam district.

Coins found at Periyapatnam, Rāmnād district.

Superintendent, Archæological Survey, Southern Circle, Madras—*cont.*

Clay objects and seals from Kāmāthīrtham, Vizagapatam district.

Inscribed stone from Hampi, Bellary district.

Black stone carved pillar and pilaster (half capital) from Tirumala Naik's Palace, Madura.

Superintendent, Central Jail, Vellore—

Samples of dyed woollen yarn used in the manufacture of carpets.

Tinnevely, Executive Engineer—

Wooden door from the Fort at Anjengo.

Trivandrum, Director, Government Museum and Public Gardens—

The following birds from the Travancore hills :—

Bourdillon's babbler (*Rhopocichla bourdilloni*).

Bourdillon's blackbird (*Merula bourdilloni*).

Blanford's laughing thrush (*Trochaloxyrum meridionale*).

Wynaad laughing thrush (*Garrulax delesserti*).

United Provinces Government—

Eight thick Benares rupees of the East India Company found in the Jaunpur district.

Two Moghul rupees found in the Lucknow district.

Seventy-one Moghul rupees found in the Bulandshahr district.

Four Moghul rupees found in the Hamirpur district.

Two do. Agra district

Two do. Banda district.

Two do. Bijnor district.

Twelve do. Sitapur district.

Seven Tughlak coins found in the Jhansi district.

Ten copper or billon Tughlak coins found in the Bara Banki district.

Six Moghul rupees found in the Allahabad district.

Thirteen Moghul rupees found in the Banda district.

Three gold coins (Sultans of Delhi) found in the Farrukhabad district.

Thirty-one Moghul rupees found in the Pilibhit district.

Seven Moghul rupees found in the Etah district.

Twelve copper coins (Tughlaq) found in the Banda district.

Six Moghul rupees (Akbar) found in the Partabgarh district.

Venugopal, B.A., Mr. S., Glass Works, Madras—

Collection to illustrate the materials used in glass-making at Madras and specimens of the finished ware.

Waghorne, F.R.I.B.A., Mr. W. J.—

Sea-urchin (*Stomopneustes variolaris*) from Waltair.

APPENDIX B.

*Classified List of Expenditure of Government Museum, Connemara Public Library, and Marine Aquarium, during the year 1911-1912.**Government Museum and Connemara Public Library.*

	Actuals, 1911-1912.	Revised estimate, 1911-1912.
	RS.	RS.
Salaries—		
Superintendent	7,050	7,050
Local allowance	191	190
Total ..	7,241	7,240
Permanent establishment, Government Museum—		
Herbarium keeper, first assistant, second assistant, writer, assistant writer, senior and second taxidermists and 26 peons—33 persons	6,406	6,650
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons ..	2,166	2,010
Total, Establishment ..	8,572	8,660
Allowances—		
Travelling allowance	1,146	1,500
Grain compensation allowance	623	600
Total, Allowances ..	1,769	2,100
Coronation bonus	218	..
Supplies and Services—		
Cost of specimens purchased on tour	160	6,500
Objects of interest and coins purchased at head- quarters	945	
Fittings, furniture, etc., for the collection	1,629	
Cost of books and publications	901	
Library	1,972	
Lithographic plates	20	
Ammunition	18	
Charges for feeding live animals	315	
Expenses—reading coins .. .. .	..
Cost of indented Europe stores	370	
Cost of locally purchased stores	122	
Freight on Europe stores	138	
Total, Supplies and Services ..	6,590	6,500
Contingencies—		
Purchase and repair of furniture	131	9,200
Tour charges	213	
Cleaning charges	393	
Postage and telegraph charges	131	
Telephone charges	75	
Rents, rates and taxes	7,029	
Office expenses	1,134	
Hot and cold weather charges	29	
Pay of menials	619	
Miscellaneous .. .. .	..
Total, Contingencies ..	9,754	9,200

* Figures for the second half year not yet reported by the Accountant-General.

Marine Aquarium.

	Actuals, 1911-1912.	Revised estimate, 1911-1912.
	RS	RS.
Permanent establishment, Marine Aquarium—		
Head-keeper, second keeper, third keeper and two door-keepers—5 persons	710	700
Famine batta	97	100
Total, Establishment ..	807	800
Coronation bonus	30	..
Supplies and Services—		
Food for animals	798	819
Fittings, etc., for the collection	241	
Cost of locally purchased stores	23	
Total, Supplies and Services ..	1,062	819
Contingencies—		
Rents, rates and taxes	196	1,300
Postage and telegraph charges .. .. .	..
Office expenses	97	
Purchase and repair of furniture	29	
Miscellaneous	25	
Pay of menials	1,029	
Cleaning charges	1	
Tour charges	28	
Total, Contingencies ..	1,405	1,300
Total, Marine Aquarium ..	3,304	2,919
Grand Total ..	37,448	36,619

Order—No. 659, Educational, dated 20th July 1912.

Recorded.

2. The thanks of Government are due to the persons who made donations to the museum during the year.

(True Extract.)

L. DAVIDSON,
Ag. Secretary to Government.

To the Superintendent, Government Museum.

- „ Director of Public Instruction.
- „ Accountant-General.
- „ Public Department.
- „ Revenue Department.
- „ Public Works Department (with reference to paragraph 3 of report).
- „ Director-General of Archaeology (with C.L.).
- „ Superintendent, Archaeological Department, Madras.

Editors' Table.

Government of Madras.

EDUCATIONAL DEPARTMENT.

Recd.

} 1913.

Enclosures

Regd.

Spare copies

G.O. No. 669, 19th July 1913.

Government Museum.

Recording, with remarks, report on the working of the —, the Marine Aquarium and the Connemara Public Library for the year 1912-13.

GOVERNMENT OF MADRAS.

EDUCATIONAL DEPARTMENT.

READ—the following paper :—

Letter—from J. R. HENDERSON, Esq., M.B., C.M., F.L.S., Superintendent, Government Museum.

To—the Secretary to Government, Educational Department.

Dated—Madras, the 7th July 1913.

No.—491.

I have the honour to forward for submission to His Excellency the Governor in Council the report on the working of the Government Museum, the Marine Aquarium and the Connemara Public Library during the year 1912-13, and to request that I may be supplied with 160 copies for distribution to other museums, etc.

ENCLOSURE.

Administration Report of the Madras Government Museum, etc., for 1912-13.

I left for England on combined privilege leave and special leave on the 5th May, and Dr. Murray Stuart acted as Superintendent and Principal Librarian, till my return to duty on the 1st November, without prejudice to his duties as Professor of Geology, Presidency College, Madras. My thanks are due to Dr. Stuart for the efficient manner in which he carried on the work during my absence.

2. VISITORS.—The numbers during the year under review, as well as for the preceding year, were as follows :—

	1911-12.	1912-13.
Total number of visitors to the Old Building	326,968	426,809
Total number of visitors to the New Building	335,663	425,742
Largest number of visitors on a single day to the Old Building	45,381	64,238
Largest number of visitors on a single day to the New Building	35,414	65,549
Total number of visitors on Sundays to the Old Building	55,311	74,322
Total number of visitors on Sundays to the New Building	57,765	68,586
Total number of gosha female visitors (on the first Saturday in each month)	10,818	16,403

As usual Kattu Pongal (15th January) was the day on which the Museum was attended by the largest number of visitors.

His Excellency Lord Pentland visited the Museum on two occasions. It was also visited during the year by Her Excellency Lady Pentland, by Lord Islington and other members of the Public Service Commission, and by the Hon'ble E. S. Montagu, Under Secretary of State for India.

3. BUILDINGS.—The new office for clerks was completed and occupied in December. The construction of the extensions to the Sculpture and Economic Galleries, which was commenced in the year under report, is in an advanced stage and it is hoped that they will be ready for use in about three months.

4. THEATRE.—The theatre was used on fourteen occasions during the year as follows :—

Amateur Dramatic Society's entertainments	7
Madras Magic Circle's entertainments	2
Inaugural meeting of the Madras Economic Association (at which His Excellency the Governor presided)	1
S.P.G. High School prize distribution	1
Doveton Girls' School prize distribution	1
Presidency Training School for Mistresses prize distribution	1
Collegiate School prize distribution	1

5. ESTABLISHMENT.—The First Assistant R. Damodaram Nayudu retired on pension with effect from the 16th August 1912, after a faithful service of thirty years in the Museum. By G.O. No. 492, Educational, dated 7th May 1912, Government sanctioned the employment of an assistant on Rs. 100—5—150 for the zoological section, and M.R.Ry. B. Sundara Raj, M.A., a local graduate in Zoology, was appointed to the new post on probation for one year with effect from the 20th December.

I am pleased to record that the entire staff worked well during the year.

6. HISTORICAL.—The historical section received the following additions :—

(1) A Dutch inscribed stone, formerly preserved at the Sub-Collector's office at Chingleput, commemorating the laying of the foundation stone, on 4th May 1749, of a fortification planned by Conrad Peter Keller which was probably part of the Dutch fort "Oranje" at Sadras in the Chingleput district. This fort was taken in 1781 by a British detachment under Captain George Mackay, Commandant of Chingleput, and the stone was in all probability taken to the latter place as a war trophy.

(2) A brass weight from Tranquebar bearing the crowned monogram of King Christian VII of Denmark (1736—1808) and dated 1806.

7. ARCHÆOLOGY AND ART.—Among the more noteworthy additions to this section are the following :—

(1) Cinerary urns and other objects from an ancient rock-cut tomb recently discovered near Calicut, to the existence of which attention was called by the Hon'ble Sir John Atkinson, K.C.S.I., and which was inspected by the Archæological Survey department at his instance. My thanks are due to Mr. Longhurst, Additional Superintendent, Archæological Survey, Southern Circle, for this addition to the collection and for an interesting report on the find.

(2) A Jain stone image from the village of Villivakkam in the neighbourhood of Madras. The Assistant Archæological Superintendent for Epigraphy refers to this ancient monument as "a rare object of historical interest" in page 5 of his report for 1910-11, recorded in G.O. No. 532, Public, dated 28th July 1911.

(3) Five sets of copper plates belonging to the Pāndya and Eastern Chālukya dynasties, received from the Assistant Archæological Superintendent for Epigraphy (items 1-5 in Appendix A to his report for 1911-12, recorded in G.O. No. 919, Public, dated 29th July 1912).

(4) A large series of wood-carvings representing Hindu mythological figures, chiefly from the Rāmaswāmi temple at Tādpatri in the Anantapūr district and the Srīnivāsa-perumāl temple at Tirupati in the Chittoor district. These carvings belonged to temple cars and were presented to the Archæological department by the temple authorities. I am making arrangements to have this interesting series exhibited on the staircase in the New Building.

The following additions were made to the collection of South Indian bronze images :—Kāmātechi Amman, Vēnugōpālaswāmi, Amman and Vishnu, purchased by the Superintendent of the Archæological Survey, Southern Circle, from funds placed at his disposal by the Director-General of Archæology and lent to this Museum ; two figures of Siva found in the Nellore district, purchased by the same officer out of his office budget and transferred to this Museum ; a group of small Vaishnavite images from Srīrangam, Trichinopoly district, acquired under the Indian Treasure Trove Act.

Mr. Rea, Superintendent, Archæological Survey, Southern Circle, continued to be on special duty at the Museum in the work of arranging and cataloguing the antiquities. He has prepared and submitted to Government a catalogue of the prehistoric collection from Adichanallūr in the Tinnevely district.

The collection of brass and of Bidri and silver ware exhibited in the Art Gallery was considerably augmented during the year. As the brass articles were previously exhibited in huge cases in which they were not seen to advantage and from which it was difficult to remove them for cleaning, I devoted some attention while on leave last year to the arrangements followed in English museums for the display of such objects. The old cases are accordingly being gradually superseded by cases similar

in pattern to those in use at the Victoria and Albert Museum, South Kensington, and the opportunity is being taken to classify the objects, as they had not formerly been arranged in any definite manner.

8. NUMISMATICS.—The following coins were acquired under the Treasure Trove Act :—

(1) A gold coin of the Chōla King Rājarāja, in a small bell-metal casket, from the Tanjore district.

(2) Two hundred and thirty-three Roman silver coins (denarii) found in the Coimbatore district, all belonging to two common types, of which several large finds have previously been made in Southern India. One hundred and eighty-four of the coins were struck during the reign of the Emperor Tiberius (14—37 A.D.) and the remainder in the reign of Augustus (29 B.C.—14 A.D.).

(3) Four half pagodas of Venkata of the Vijayanagara dynasty, found in the Gōdāvari district.

(4) Fifty copper Tughlaq coins found in the Kistna district.

(5) Three Moghul pagodas and nineteen Moghul rupees, chiefly from the Imtiyāzgarh (Adōni) mint, found in the Bellary district.

(6) One Tughlaq gold coin, four gold coins of the Mameluk Sultans of Egypt, ten half pagodas of Harihara of Vijayanagara, and forty-seven small gold coins, apparently of Tughlaq or Moghul fabric, all found in the South Arcot district.

Specimens from the last three finds were distributed to the Indian Museum and other institutions in accordance with the rules to regulate proceedings under the Indian Treasure Trove Act (appended to G.O. No. 604, Public, dated 26th July 1907).

Seven copper coins (Muhammadan Viceroys of Madura, Pāṇḍya and Chōla) were presented by the Assistant Archæological Superintendent for Epigraphy. Five copper coins of the Eastern Chālukya dynasty were presented by M.R.Ry. D. V. Prakasa Row of Cocanada.

The most important coin acquired by purchase is an Indo-Danish lead piece from the Tranquebar mint, struck during the reign of Frederick III (1648–1670).

To the Governments of the Central Provinces and the Punjab, to the Central India and Rajputana Agencies, to the Asiatic Society of Bengal and to the Bombay Branch of the Royal Asiatic Society, the Museum is indebted for coins presented to it in the course of the year.

9. ECONOMIC AND BOTANICAL.—The Botanical Assistant made three tours during the year, viz., to the Kurnool district in July, to Travancore in October, and to the Gōdāvari district in January. These resulted in considerable additions to the Botanical and Economic sections, and in a number of photographs illustrating growing plants and methods of manufacture adopted in the case of various vegetable economic products. These photographs are exhibited near the objects to which they refer and the latter thereby rendered more interesting to the general public. It is hoped that in time the more important exhibits in the Economic Gallery will be illustrated in this way. Among the economic products collected were the following :—

(1) From the Kurnool district, bark, fibre and rope from *Hardwickia binata*; reeds of a species of *Cyperus* used in the manufacture of mats; varieties of cholam (*Andropogon sorghum*) peculiar to the district; oil and oilcake from safflower (*Carthamus tinctorius*).

(2) From Travancore, fibre from *Helicteres isora* and *Sterculia urens*; bark from *Antiaris toxicaria* used as a natural cloth by the hill tribes; gums and resins from *Vateria indica*, *Pterocarpus marsupium*, *Stereospermum xylocarpum* and *Hardwickia pinnata*; flour from *Cycus circinalis* and *Corypha umbraculifera*; reeds of the bamboo *Oxytenanthera thwait-sii*; and samples of rubber and rubber-tapping instruments.

(3) From the Gōdāvari district, varieties of country hemp and sunn hemp; tubers of different species of *Dioscorea* and of *Ipomea batatas* used as food; various tanning barks and timber specimens; and local varieties of paddy, of the pigeon pea (*Cajanus indicus*) and of sugar-cane.

In the Botanical Gallery the paper of a large number of the framed herbarium sheets had become discoloured, and about eighty of the specimens were remounted on white paper and provided with printed labels. The index collection in the Economic Gallery has been rearranged and labels giving a summary of the contents have been added to the exterior of each case.

10. GEOLOGY AND MINERALOGY.—I am indebted to Mr. H. M. A. Cooke, Vice-Chairman of the Kolar Gold Field Mining Board, for an interesting series of exhibits to illustrate the cyanide process of the extraction of gold. The Museum collection formerly only possessed exhibits connected with the pan-amalgamation process which was discontinued at Kolar about seventeen years ago.

Among the additions to this section are the following:—

(1) From Travancore, pegmatite, norite and leptynite, also quartz, garnet, ilmenite and monazite sands.

(2) From Coimbatore, quartz crystals and plagioclase felspar, acquired by purchase.

11. NATURAL HISTORY.—In a tour which I made to the Rāmnād district in February, accompanied by Mr. S. W. Kemp of the Indian Museum, Calcutta, ten days were spent in making collections of the rich marine fauna on the coral reef at Kilākarai. The working out of these collections will take some considerable time, but the specimens are being gradually incorporated with the exhibits in the zoological galleries. The opportunity was taken during this tour of instructing the new Zoological Assistant in methods of collecting and preserving specimens. Tours were also made by the senior Taxidermist to the Kurnool district in July, and by the second Taxidermist to the Nellore district in October.

Among the more important additions to the zoological section the following may be noted:—

(1) A specimen of the Great Snipe (*Gallinago major*) shot by Mr. G. L. Peters near Arkonam on 30th March. This species inhabits Europe and western Asia; yet the only specimens hitherto met with in India, three in number, have all been found in South India.

(2) The following other birds new to the collection:—Great Eared Nightjar (*Lyncornis cerviniceps*) obtained in August at Tinnevely by the Hon'ble Mr. W. Francis, I.C.S.; Indian River Tern (*Sterna seena*) and Indian Shag (*Phalacrocorax fuscicollis*) both from the Nellore district. The Great Eared Nightjar is a very local bird in Peninsular India, having only been found previously on the Travancore hills; owing to delay in the post the Tinnevely specimen unfortunately arrived in a decomposed state and could not be set up.

(3) The following reptiles new to the collection:—a Loggerhead Turtle (*Thalassochelys caretta*) from Madras, five and a half feet in length, which lived for a considerable time in the Marine Aquarium; the Ceylon race (var. *thermalis*) of the common Pond Tortoise (*Geoemyda trijuga*) from Kilākarai.

(4) A collection of fresh-water fish comprising thirty-six species, from the neighbourhood of Madras, the majority of which were collected by the Zoological Assistant before he joined the Museum staff.

In addition to the above a considerable number of specimens, chiefly birds, have replaced older and less perfect ones in the collections.

Exhibits to illustrate the natural surroundings and habits of common South Indian animals have been placed in the galleries, and it is hoped to add considerably to this series in the future. They comprise a section of the burrow of the common black Scorpion (*Palamnæus fulvipes*), and nests of the Trap-door Spider (*Acanthodon constructor*) and of the Carpenter Bee (*Xylocopa tenuiscapa*) also in section.

In a collection of crabs sent by the Trivandrum Museum for identification was a new variety (var. *travancorica*) of a species previously described by myself from Cochin State (*Paratelphusa malabarica*) which has been figured and described in the Records of the Indian Museum. While on leave I prepared a report on the scorpions collected during the Abor Expedition which has since been published in the Records of the Indian Museum, and the opportunity was taken of a somewhat lengthy period of study at the British Museum (Natural History Department) to work out a series of South Indian scorpions belonging to the Madras Museum.

In the vivarium the experiment was made of keeping live insects, and a case containing numerous specimens of the large and gaudy Painted Grasshopper (*Pædicera picta*) made an attractive exhibit during the cold weather. One of two specimens of the dangerous little viper *Echis carinata*, received on the 20th October 1911, gave birth to ten young ones on the 6th July in the following year. Another specimen of this viper, captured in the Museum compound, was added to the live animal collection during the year. As the species is not known to occur within municipal limits in Madras this specimen had probably been carried into the compound with laterite which was being used to mend the roads.

12. MARINE AQUARIUM.—The Aquarium continued to maintain its popularity. The total number of visitors during the year under review and the amount realized in entrance fees, were 126,843 and Rs. 4,758 against 124,966 and Rs. 4,654 in the previous year. The largest number of visitors on any single day was 4,576 on Kattu Pongal (15th January). The total admissions on Wednesdays, when the entrance fee is four annas, and on gosha and ordinary days when the fee is one anna in the forenoon and half an anna in the afternoon, are shown below :—

					Morning.	Afternoon.	Total.
Wednesdays	..	..	..	..	391	1,412	1,803
Gosha days	..	..	..	..	181	2,387	2,568
Other days	..	..	..	..	12,389	110,083	122,472

A reprint of the Guide to the Aquarium, consisting of two thousand copies was published in May and nearly eight hundred copies were sold during the year.

13. CONNEMARA PUBLIC LIBRARY.—The total number of readers during the year was 19,207 against 18,574 in 1911-12 :—

Largest number of readers in a day	..	..	..	..	..	148
Smallest	..	..	..	..	..	22
Largest	..	..	..	..	..	144
Smallest	..	..	..	..	..	46

The number of standard works added to the library was 347, of which 311 were purchased and the rest presented. Among the books acquired may be mentioned Lockyer's "Account of the Trade in India" (1711), which contains an interesting account of Madras in 1704, a "Memorial by Lord Bentinck containing an account of the Mutiny at Vellore" (1810), and Rodriguez's "Hindoo Castes," volume I (all published), a work which appeared at Madras in 1846 and is now scarce.

The fourth supplement to the library Catalogue of Books under Authors' Names was published during the year. The work of preparing a Subject-Index of the books in the library has been completed and every endeavour will be made to issue it at as early a date as possible.

A statement of the number of books issued to readers during the last two years, under the various subject catalogue heads, is subjoined :—

						1911-1912.	1912-1913.
Anatomy ; biology ; natural history ; zoology	..	..	..	..	..	912	968
Anthropology ; folklore	..	..	..	..	..	496	472
Archæology ; architecture	..	..	..	..	..	237	382
Arts ; industries	..	..	..	..	..	1,267	1,283
Atlases ; maps	..	..	..	..	..	72	86
Belles lettres	..	..	..	..	..	4,608	5,016
Botany ; arboriculture ; horticulture	..	..	..	..	..	209	274
Chemistry ; agriculture ; photography	..	..	..	..	..	297	308
Classics	..	..	..	..	..	206	157

						1911-1912.	1912-1913.
Dictionaries ; encyclopædias ; gazetteers ; manuals	..	..	..	..	..	5,291	6,845
Economic products	..	..	..	..	..	294	263
Education ; ethics ; logic	..	..	..	..	..	885	981
Exhibitions	..	..	..	..	..	19	27
Forestry ; timbers	..	..	..	..	..	47	62
Geography ; physical geography ; physiography	..	..	..	..	..	92	119
Geology	..	..	..	..	..	104	95
History	..	..	..	..	..	3,529	4,637
Jurisprudence	..	..	..	..	..	382	369
Medicine ; surgery ; pathology	..	..	..	..	..	337	405
Microscopy	..	..	..	..	..	28	16
Mineralogy ; metallurgy	..	..	..	..	..	164	182
Natural philosophy	..	..	..	..	..	598	608
Numismatics ; medals ; heraldry	..	..	..	..	..	89	92
Philology ; epigraphy	..	..	..	..	..	896	1,308
Photographs	..	..	..	..	..	142	160
Physiology	..	..	..	..	..	308	348
Public health	..	..	..	..	..	104	92
Religion	..	..	..	..	..	1,408	1,548
Sport and games	..	..	..	..	..	182	265
Travels ; voyages	..	..	..	..	..	261	206
Vernacular languages	..	..	..	..	..	46	68
<i>Port St. George Gazette</i> (other than current issues)	..	..	..	..	..	719	842

14. UNIVERSITY LIBRARY.—The question of a separate building for the Library is still under the consideration of the Syndicate of the University.

The printing of the Catalogue of Books under Authors' Names is in an advanced stage, and it is hoped that it will be published in a few months.

The Library was, as in previous years, used by a number of post-graduate students and others engaged in special research. It will be opened for general use as soon as the catalogue is ready.

15. VALUABLE STOCK.—The necessary inventory was maintained and duly checked.

The usual list of donations and statement of expenditure are appended.

APPENDIX A.

DONATIONS, 1912-1913.

Additional Superintendent, Archæological Survey, Southern Circle—

- Four large cinerary urns.
- Three annular stands (broken).
- Two medium size urns.
- Two jars.
- A small jar.
- A tray with legs.
- All from a rock-cut tomb near Calicut.

Antony, Mr. R. N.—

- Trap-door spider (*Acanthodon constructor*) with its nest, from Madras.

Arockiasawmy Pillai, Mr. J. P.—

- Slough of Rat snake (*Zamenis mucosus*) from Shoranur, Malabar district.

Assistant Archæological Superintendent for Epigraphy, Southern Circle—

- Seven copper coins (Mohammadan Rulers of Madura, Pandya and Chōla).

Bickham, Mr. W. S.—

- Butterfly chrysalis.

Bird, Mrs. F. D.—

- Caterpillar of Hawk-moth.
- Mantis.

Bobbili, H. H. the Maharaja of, K.C.I.E.—

- Embroidered coat and vest.

Bourne, Lady—

- Skin of peacock (*Pavo cristatus*).

Boys, Mr. H.—

- Mantis.

Campbell, Mr. Allan, Executive Engineer, P.W.D., Calicut—

- Two crabs (*Calappa hepatica*) from Kalpeni, Laccadive Islands.

Central India, First Assistant to the Agent to the Governor-General—

- Three silver coins [Gadhaiya (2) and Vighra Dramma (1)] found in Punoheva village, Panth Piploda estate, Malwa Agency.

Central Provinces, Director of Agriculture—

- One gold coin (Gangaya Deva) found in the Saugor district.
- Four gold coins found at Robinkhed, Buldana district.

Champaram, Behar and Orissa, District Officer—

- Two gold coins found at Pipra.

Cooke, Mr. H. M. A.—

- Specimens to illustrate the cyanide process of gold extraction.

Corporation of Madras—

- Lion (*Felis leo*).
- Lemur (*Lemur fulvus*).
- Five parrots (various species).
- Three pheasants (various species).
- New Guinea Pigeon (*Goura coronata*).
- All from the Menagerie, Peoples' Park

Cross, Mr. F.—

- Mangan-apatite (chlor-fluor variety) found in the Tinnevely district.

Devanesan, B.A., Mr. D. W.—

- Collection of lizards (*Sitana ponticeriana*, *Uabrita leschenaultii*, *Mabuia carinata*, *M. vertebra-*
lis and *M. macularia*)
- Tiger beetles.
- All from Tripatur, Rāmnād district.

Devasahayam, Rev. V —

- Four Indo-Danish copper coins of Frederick VI and Christian VIII.

Ettiyapuram, Raja of—

- Malformed cocoanut.

Evers, Mr. D. J.—

- Nest and eggs of Tailor-bird (*Orthotomus sutorius*).

Francis, I.C.S., the Hon'ble Mr. W.—

- Great Eared Nightjar (*Lyncornis cerviniceps*) from Tinnevely.

- Giffard, c.s.i., I.M.S., Lieut.-Col. G. G.—
Skull of Hippopotamus (*H. amphibius*).
- Gopalan, M.R.Ry. M.—
Two slugs (*Vaginulus* sp.) from Trichur, Cochin State.
- Govindoss Chaturbhuj Doss, Diwan Bahadur—
Musk deer (*Moschus moschiferus*) from North India.
- Hannington, I.C.S., Mr. F.—
Various insects.
Breeding cage for insects.
- Iyaswami Pillai, Mr. P. V.—
Slough of Python (*Python molurus*).
- Kohlhoff, Mr. C.—
Large spider (*Pæcilotheria* sp.) from Cochin State.
- Lahore Central Museum, Curator—
Five Moghul rupees.
Four Moghul rupees found at the Central Jail, Multan.
- Loganatha Mudaliyar, Mr. M. L.—
Queen white ant.
Two Butterflies (*Papilio hector*) from Madras.
- Martin, Mr. A. F.—
Living Chameleon (*Chamaeleon calcaratus*) from Srivilliputtur, Rāmnād district.
- Numismatic Secretary, Asiatic Society of Bengal—
Moghul rupee.
- Newton, Mr. G. H.—
Sample of wood attacked by a boring beetle (*Bostrychus* sp.) from Villupuram, South Arcot district.
- Peters, Mr. G. L.—
Great Snipe (*Gallinago major*) from Arkonam, North Arcot district.
- Prakasa Row, B.A., Mr. D. V.—
Five copper coins of the Eastern Chālukya dynasty from Vengi, Ellore taluk, Kistna district.
- Raghavendra Rao, Mr. K.—
Two fish (*Haplochilus melanostigma*) from Tiruvottiyur, Chingleput district.
- Rajputana Museum, Superintendent—
Fifteen billon coins of Qutub-ud-din Mubarak, and Ghyas-ud-din Tughlaq, dated 716 to 727 A.H., found at Kanpura, Ajmeer district.
- Royal Asiatic Society, Bombay Branch—
Three silver coins—Baroda State rupee and half-rupees (from Broach district).
One copper coin—Ahmad Shah I. of Gujarat (from Kaira district).
- Royappa Pillai, Mr. M.—
Centipede, from Rāmnād.
- Samalkot, Manager, Government Farm—
Varieties of sugar-cane.
- Sankariar, B.A., B.L., Mr. R. S.—
Earth-snake (*Typhlops braminus*) from Sivaganga.
- Silver, M.A., Rev. A.—
Scorpion (*Palumnæus fulvipes*).
Solifuge (*Galodes indicus*).
Both from Sholinghur, North Arcot district.
- Stoney, Mr. R. F., Executive Engineer, Madras—
Pintail Snipe (*Gallinago stenura*).
Long-armed sheath-tailed bat (*Taphozous longimanus*).
Bicoloured leaf-nosed bat (*Hipposiderus bicolor*).
Spider.
All from Madras.
- Sundara Raj, M.A., Mr. B.—
Specimens of a Phyllopod (*Streptocephalus dichotomus*) from Madras.
A named collection of fresh-water fish from the neighbourhood of Madras.
- Todd, Mr. A. H. A.—
Abnormal egg with a second egg inside.
- Trivandrum, Director, Government Museum and Public Gardens—
Crab (*Plagusia tuberculata*) from Travancore.
- Wills, Mr. H. R.—
Live snake (*Cerberus rhynchops*) from Madras.

APPENDIX B.

Classified List of Expenditure of Government Museum, Connemara Public Library, and Marine Aquarium, during the year 1912-1913.

GOVERNMENT MUSEUM AND CONNEMARA PUBLIC LIBRARY.

	Actuals, 1912-1913.	Revised estimate, 1912-1913.
	RS.	RS.
Salaries—		
Superintendent	5,361	5,400
Local allowance	420	420
Total ..	5,781	5,820
Permanent establishment, Government Museum—		
Zoological assistant, herbarium keeper, first assistant, second assistant, writer, assistant writer, senior and second taxidermists and 28 peons—36 persons ..	7,215	8,270
Permanent establishment, Connemara Public Library—		
Sub-librarian, three attendants and two peons ..	2,341	2,325
Total, Establishment ..	9,556	10,595
Allowances—		
Travelling allowance	785	700
Grain compensation allowance	700	792
Total, Allowances ..	1,485	1,492
Supplies and Services—		
Cost of specimens purchased on tour	322	7,674
Objects of interest and coins purchased at head- quarters	447	
Fittings, furniture, etc., for the collection	2,053	
Cost of books and publications	896	
Library	1,735	
Lithographic plates	35	
Ammunition	15	
Charges for feeding live animals	338	
Expenses—reading coins	5	
Cost of indented Europe stores	227	
Cost of locally-purchased stores	178	
Freight on Europe stores	65	
Total, Supplies and Services ..	6,316	7,674
Contingencies—		
Purchase and repair of furniture	96	11,638
Tour charges	131	
Cleaning charges	420	
Postage and telegraph charges	110	
Telephone charges	75	
Rents, rates and taxes	4,473	
Office expenses	1,196	
Electric lights and fans	65	
Pay of menials	854	
Miscellaneous	67	
Total, Contingencies ..	7,487	11,638

MARINE AQUARIUM.

	Actuals, 1912-1913.	Revised estimate, 1912-1913.
	RS.	RS.
Permanent establishment, Marine Aquarium—		
Head-keeper, second keeper, third keeper and two door-keepers—5 persons	760	756
Famine batta	108	108
Total, Establishment ..	868	864
Supplies and Services—		
Food for animals	751	1,055
Fittings, etc., for the collection	400	
Cost of locally-purchased stores	17	
Cost of indented Europe stores	78	
Freight on Europe stores	1	
Total, Supplies and Services ..	1,247	1,055
Contingencies—		
Rents, rates and taxes	196	1,862
Postage and telegraph charges	151	
Office expenses	2	
Purchase and repair of furniture	20	
Miscellaneous	1,511	
Pay of menials	53	
Cleaning charges		
Tour charges		
Total, Contingencies ..	1,933	1,862
Total, Marine Aquarium ..	4,048	3,781
Grand Total ..	24,673	41,000

Order—No. 669, Educational, dated 19th July 1913.

Recorded.

2. The thanks of Government are due to the persons who made donations to the museum during the year.

(True Extract.)

W. FRANCIS,
Ag. Secretary to Government.

To the Superintendent, Government Museum.
 „ Director of Public Instruction.
 „ Accountant-General.
 „ Public Department.
 „ Revenue Department.
 „ Director-General of Archaeology (with C.L.)
 „ Public Works Department with reference to paragraph 3 of report.

Editors' Table.

ॐ श्रीगणेशाय नमः
१८/१२/२०२०

Central Archaeological Library,

NEW DELHI.

22 431

Call No. 069.09(5451)/MAG.

Author—Madras Education
Dept.

Title—Administrative
reports of the Madras
Government Museum 1897-98
1915

Borrower No.

Date of Issue

Date of Return